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CHEMICAL AND PHYSICAL CHARACTERISTICS OF SNOW IN THE KEJIMKUJIK NATIONAL PARK AREA

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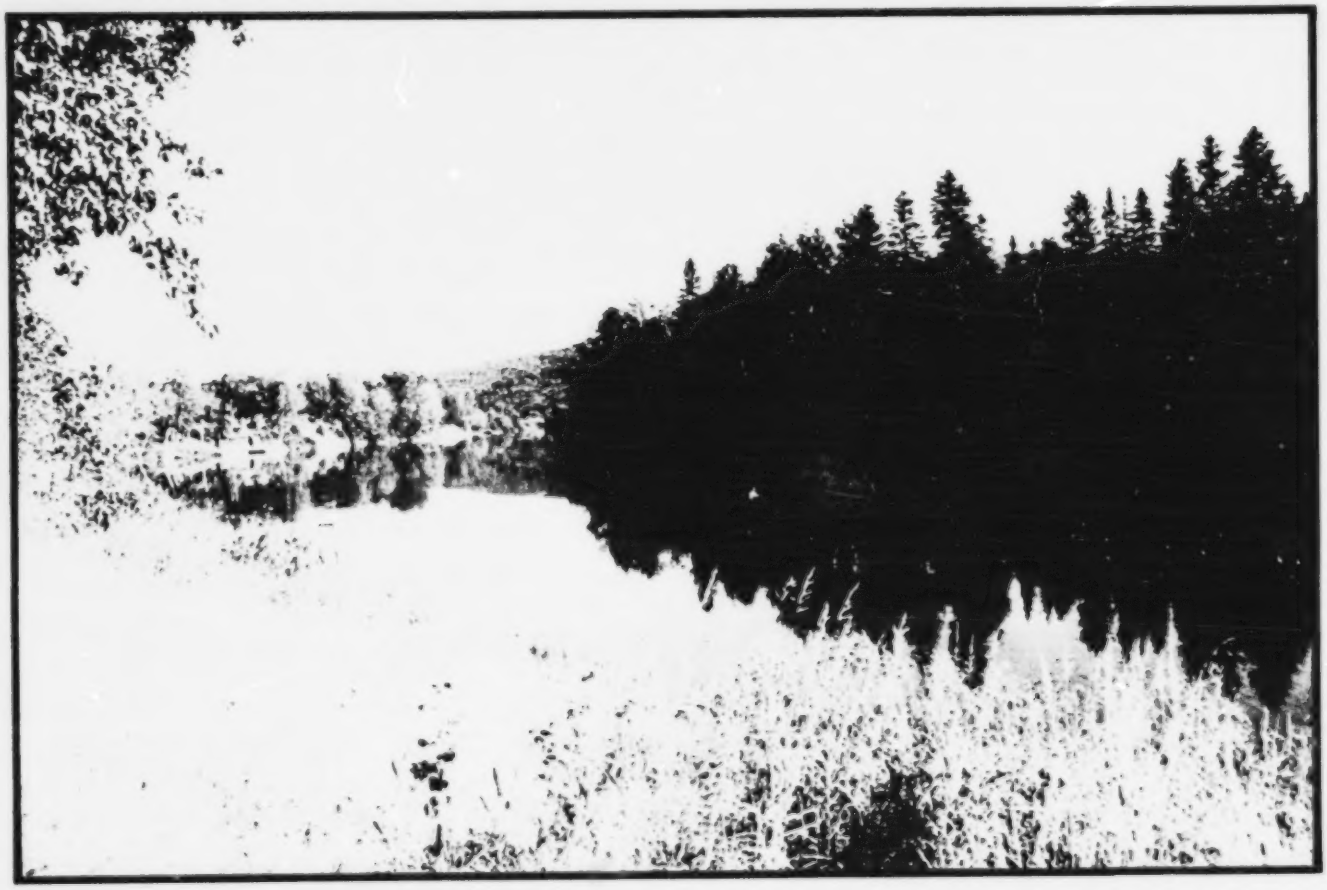

INLAND WATERS DIRECTORATE
ATLANTIC REGION
WATER QUALITY BRANCH
MONCTON, NEW BRUNSWICK

CHEMICAL AND PHYSICAL CHARACTERISTICS OF SNOW IN THE KEJIMKUJIK NATIONAL PARK AREA

II WINTER 1984-85

IWD-AR-WQB-86-95

Thomas A. Clair

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ABSTRACT and MANAGEMENT PERSPECTIVE

Fifteen snow samples were collected weekly along each of two, 150 m long transects in the upper Mersey River basin, in southwest Nova Scotia, from January 10 to March 10 in 1985. One transect (Site B) was located in the headwaters area of the basin, the other at the CAPMON atmospheric sampling site, 35 km downstream (Site A). Snowpack depth and water content were similar at both sites over the length of the study. Snow chemistry was highly influenced by seaspray, as the headwaters site, located 30 km from the Bay of Fundy showed higher concentrations of all ions. The data show that nitric acid is more important than sulfuric in the snowpack at both sites. These data can now be used to construct improved hydrological and chemical models of the upper Mersey River and allow us to better study the implications of snowmelt on potential short-term water quality changes.

RESUME ET PERSPECTIVE GESTION

Quinze échantillons de neige furent collectionnés le long de chacun de deux transects de 150 m, chaque semaine dans le bassin de la rivière Mersey au sud-ouest de la Nouvelle Ecosse du 10 janvier au 10 mars, 1985. Un emplacement etait placé pres de la station d'échantillonnage atmosphérique de Kejimkujik (Site A), et l'autre dans la region des lacs de têtes du bassin (Site B). La profondeur et le contenue d'eau de la neige etaient identiques aux deux endroits durant la période d'étude. La chimie de la neige fut très influencée par l'écume marine provenant de la Baie de Fundy et de l'Ocean Atlantique, surtout au Site B. Nos données nous montrent que les acides nitriques sont plus importantes que les acides sulfuriques dans la neige de la région. Ces données peuvent maintenant être utilisées dans l'élaboration de modèles hydrologiques et chimiques de la partie supérieure de la riviere Mersey. Nous pouvons aussi mieux comprendre les effets des fontes de neige sur les changements a court terme de la qualité des eaux de la région.

INTRODUCTION

Snowmelt has been identified as one of the most important modifiers of stream and river chemistry in temperate and boreal regions of North America and Europe (Jeffries et al. 1979; Cadle et al.1984; Johannessen et al. 1980). Evidence from stream chemistry in southwestern Nova Scotia (Clair and Freedman, 1986) also shows similar effects, as ions deposited in the snowpack are released into streams during snowmelts and thus change ion concentrations over a short period of time. Though chemical descriptions of precipitation are available from the CANSAP, APN, and CAPMON networks, these are often not suitable for predicting effects on streams, due to a number of physical processes that occur within the snowpack over the period of its existence (Colbeck 1981).

The Kejimkujik National Park area of Nova Scotia has been the focus of a number of studies by the Water Quality Branch and other agencies, dealing with the chemical quality of local streams and lakes. One gap in our work has been a lack of information on snowpack chemistry and so an attempt to relate it to water quality and quantity in local basins until recently, has been impossible. This report summarizes the results of the evaluation of snowpack water content and chemistry in the upper Mersey basin during the winter of 1984-1985. The data presented here will be used in a number of ways. First the snowpack physical information is necessary for the building of a predictive hydrological model of the Mersey River which is being prepared by Water Resources Branch (WRB) of the Inland Waters Directorate. Secondly, a

complementary model predicting Mersey River water chemical changes, being done at the National Water Research Institute (NWRI), requires this information to provide a more accurate picture of chemical inputs into the basin waters. Thirdly, the data will also be used to validate a model of snowpack and snowmelt chemistry currently being tested by the Atmospheric Environment Service (Paul Louie, pers. com.). The predicted results will be compared to stream water chemistry to see if pH depressions measured there can be correlated to measured snowpack changes. This report will then focus on the results of the snow sampling program conducted at the two sites in the upper Mersey River basin between January and March 1985.

AREA AND METHODS

Two sites separated from each other by 35 km were chosen for snow sampling, one at the Atmospheric Environment Service (AES) CAPMON precipitation sampling site near the bottom of the Upper Mersey River basin, and the other near West Springhill on Victoria Road in the headwaters area (Fig. 1). The CAPMON site, labelled Site A, is at approximately 110 m elevation above mean sea level (ASL), while the Victoria Road site (Site B) is at 230 m ASL. Site A is roughly equidistant from the Atlantic Ocean and the Bay of Fundy with the Atlantic being 70 km distant to the south, while the Bay of Fundy is approximately 60 km to the NNW. Site B is located about 25 km from the Bay of Fundy. The forest cover at Site A was generally composed of white pine (Pinus strobus) and white spruce (Picea glauca) while Site B was dominated by red maple (Acer rubrum) and american beech (Fagus grandifolia).

At each site, under what was deemed to be representative forest canopy, a 150 m dog-legged transect was laid out, and sampling locations marked at 10 m intervals, in accordance with the standard AES snow course method. One sample was also taken at an open site, near each transect. Sampling was done on a weekly basis at both sites, and more often if possible. Water content and snow depth were measured at all sites using a Mount Rose snowcore sampler. Snow samples for chemical analysis were taken with a clean 19 cm diameter plexiglass tube, hand-driven into the snowpack. The snow was extruded into clean laminated polyolefin/nylon bags, melted at room temperature and decanted

into DECON washed and snowmelt rinsed polyethylene bottles. Samples were then shipped to the Water Quality Branch laboratory in Moncton, where they were analyzed according to methods described in Anonymous (1985) (Table 1).

Sea salt corrections for parameters likely to be carried by seaspray were calculated using the method of Watt et al. (1979). Ion balance checks were done on all chemistry samples. All samples analyzed passed the guidelines set, so none was rejected. Mean and standard deviation values at each site were calculated from the 15 transect values plus the open site value.

RESULTS AND DISCUSSION

The weather in the Mersey River basin during the 1984-85 winter (Appendix A) deviated somewhat from long-term averages. As shown in Table 2, temperature, which was measured at the CAPMON site, was generally lower than usual in January and February, while snowfall was much greater than the norm in January. These two factors, combined to maintain continuous snowcover from January 5 to late February which was unlike the previous year's pattern of a series of snowfall, melt episodes which resulted in four separate snowpacks (Clair 1985).

Snowpack heights measured at both sites, are compared in Figure 2a, where Julian Day 1 is January 1, and Day 80 is March 21. No significant differences were measured in snowpack height between Site A and B over the study period. It was also seen that the daily snow on ground measurement done in the open at the AES site (Appendix A), tended to follow the same general pattern as the transects though that measurement showed more fluctuation than the mean weekly values, probably due to the more immediate impact of solar energy on exposed snow. The AES snow measurements however, were usually within one standard deviation of the transect values. To further place the reported AES snow measurements in perspective, the open sites which were located close to the transects were also within one standard deviation of the calculated means, and so did not contribute any information significantly different from the transect results.

Snow water content values for the sampling dates are shown in

Figure 2b. As with snowpack depth, there is no difference between the upper and lower basin sites over the length of the study.

Compared to the previous year's data, snowpack accumulation and thus water content were much higher in 1984-85 than in 1983-84 (Clair 1985), as the greater snowfall in January and the constancy of the pack ensured that a greater accumulation occurred. These data also show an increasing compaction of snow from January 23 to February 18 (Day 48), though overall water content did not change appreciably over this time. Decreases in both measurements began at Site B on Day 48, with the pack height dropping off very sharply beginning on February 25 (Day 55) and disappearing on March 2. A second pack appeared on March 5, but disappeared within a week. The same general pattern was measured at Site A, though Site A began its final decrease in height a week later than at Site B.

Patterns of snowpack ion concentrations tended to follow that of snowpack depth, except that for many parameters, there was a significant difference in values between Sites A and B. Figures 3a, b, c, d show that hydrogen measured as pH, chloride, sulfate and nitrate were higher at Site B at the 99% confidence level, using a non-parametric sign test. The remaining parameters all of which demonstrated a similar pattern (sodium, alkalinity, conductance, total nitrogen, calcium and magnesium) are shown in Appendix B. The raw data used in making the figures are tabulated in Appendix C in microequivalents per liter.

Most parameter values at Site B began their decrease in

concentration on day 25, while no decrease was noted until day 39 at Site A. This trend followed that of the snowpack depth, but not of snow water content, confirming the work of numerous authors (Johannesson and Henriksen 1978, Colbeck 1981) who have shown a gradual leaching of ions from snow over the winter. It can be assumed that the ions make their way to the bottom of snowpacks, and then into streams and rivers either through soils or overland flow. As there are no climate data from Site B, no explanation can be made of the differences in chemistry changes.

Two other parameters, DOC and colour (Appendix B), also showed slight differences between sites and most likely indicated vegetation effects and not atmospheric deposition. As DOC was higher at Site A, it probably is not related to the higher nitrate values measured at Site B.

It was thought that seaspray was probably one of the main factors explaining some of the differences in parameter levels. Ions that can be imported into basins by seaspray include sulfate, calcium, magnesium, potassium, sodium and chloride, so that this hypothesis was tested by calculating their seasalt corrected values. These are plotted in Figures 4a, b, c, d and e. After calculations, no significant differences between sites existed for sulfate, sodium and magnesium, though calcium, then had higher levels at Site A than Site B, while Site A potassium was greater than at Site B, where no differences existed between them before. The higher corrected values of potassium at Site A could be due to scouring of the ion from tree needles, which are less frequent at Site B, though no evidence for this idea was found by this work. These data do show however, that seasalt did influence the

difference in site snow chemistry. These data also show values wildly fluctuating at Site A on Feb. 2 due to high variability in Cl snow content which greatly influenced seasalt corrections.

Despite the insights gained by removing seasalt influence, other factors must be invoked to explain pH and nitrate-nitrite differences between sites, neither of which can be caused by seaspray. The difference could be due to local influences, as there is a house located one kilometer upwind from the site and a road 200 m away, to orographic factors influencing NO_3 deposition at the upper part of the watershed, or to mesoscale depositional effects which were also noted the previous year between the CAPMON site and a site at Beaverskin Lake (Clair 1985).

A comparison of the relative importance of nitric or sulfuric acid in the snowpack over the winter was also done by plotting mean equivalencies of both total nitrate and seasalt corrected sulfate at both sites (Fig. 5a, b). In both cases, nitric was the more important of the two, though values of both sulfate and nitrate were slightly higher at Site B. It should also be pointed out that the sum of nitrate and sulfate ions was often much higher than the hydrogen ion concentration, (Figures 6a, b). This leads to suggest that terrestrial inputs of $CaSO_4$ or KSO_4 may influence snowpack chemistry, as data show a contribution of the two cations which cannot be accounted for by seaspray.

The chemistry data for 1985 were compared to those from 1984 (Clair 1985) and most parameters were found to be somewhat higher at a number

of sampling dates in 1985 than at any time the previous year, however the variations in chemistry over time, as well as the rapid changes in snowpack presence the previous year make meaningful comparisons impossible. The samples taken at the open sites (Appendix C) generally did not contribute information significantly different from the regular transect locations.

The methods used and the sites sampled in 1985, with minor modifications and quality control improvements will be followed in future years. The open site near the transects will be dropped as they did not provide new information and they do not conform to standard methods. Replicates at randomly selected sampling sites will be done to further identify sources of within site variability. Also Site B will be studied more closely to ensure that no contamination from local effects influences it.

In summary, the snow sampling in 1985 produced data which gave a good assessment of snow quality and quantity in the Mersey River basin. The sampling and analytical methods used, seemed adequate to fill the need for high quality, reproducible data which can be used in computer modelling of river quality. The data will also allow a deeper examination of snowmelt, "acid shock" potential as it exists in the Kejimkujik area.

ACKNOWLEDGEMENTS

I thank F. Luxton of Caledonia, N.S. for the collection of snow

samples, the staff of Kejimkujik National Park for providing access to their facilities and the laboratory staff at Water Quality Branch for doing the analyses. D. Lam, G. Bobba, A. Gilmore and W. Brimley were consulted on site locations and snow sampling methods.

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TABLE 1. NAQUADAT codes and detection limits of the snow quality parameters reported

Parameter	NAQUADAT Code	Units	Detection Limit
pH	10301L	-	N/A
Specific Conductance	02041L	uSie/cm	N/A
Turbidity	02073L	JTU	0
Calcium	20110L	$mg.L^{-1}$	.01
Dissolved Organic Carbon	06107L	$mg.L^{-1}$	.4
Nitrate	07110L	$mg.L^{-1}$	.002
Sulfate-IC	16309L	$mg.L^{-1}$	0.05
Alkalinity (GRAN)	10110L	$mg.L^{-1}$	N/A
Magnesium	12107L	$mg.L^{-1}$	.005
Potassium	19103L	$mg.L^{-1}$	0.1
Sodium	11103L	$mg.L^{-1}$	0.1
Chloride	17205L	$mg.L^{-1}$	0.1
Total nitrogen	07601L	$mg.L^{-1}$	.025

TABLE 2. Comparison of mean (or median) maximum and minimum values measured for temperature, snow cover and snowfall in 1985 compared to long-term values presented by Watson (1977).

	January			February			March		
	Mean	Maximum	Minimum	Mean	Maximum	Minimum	Mean	Maximum	Minimum
Temperature (^{o}C)									
1985	- 8.8	4.5	-26.4	- 4.8	8.5	-27	- 2.0	13.5	-23.5
Long-term	- 6.3	11.1	-24.4	- 5.4	12.2	-30	- 2.0	15.6	-23.3
Total Snowfall (cm)									
1985	154			46			23		
Long-term	62			73.1			44.7		

FIGURE 1

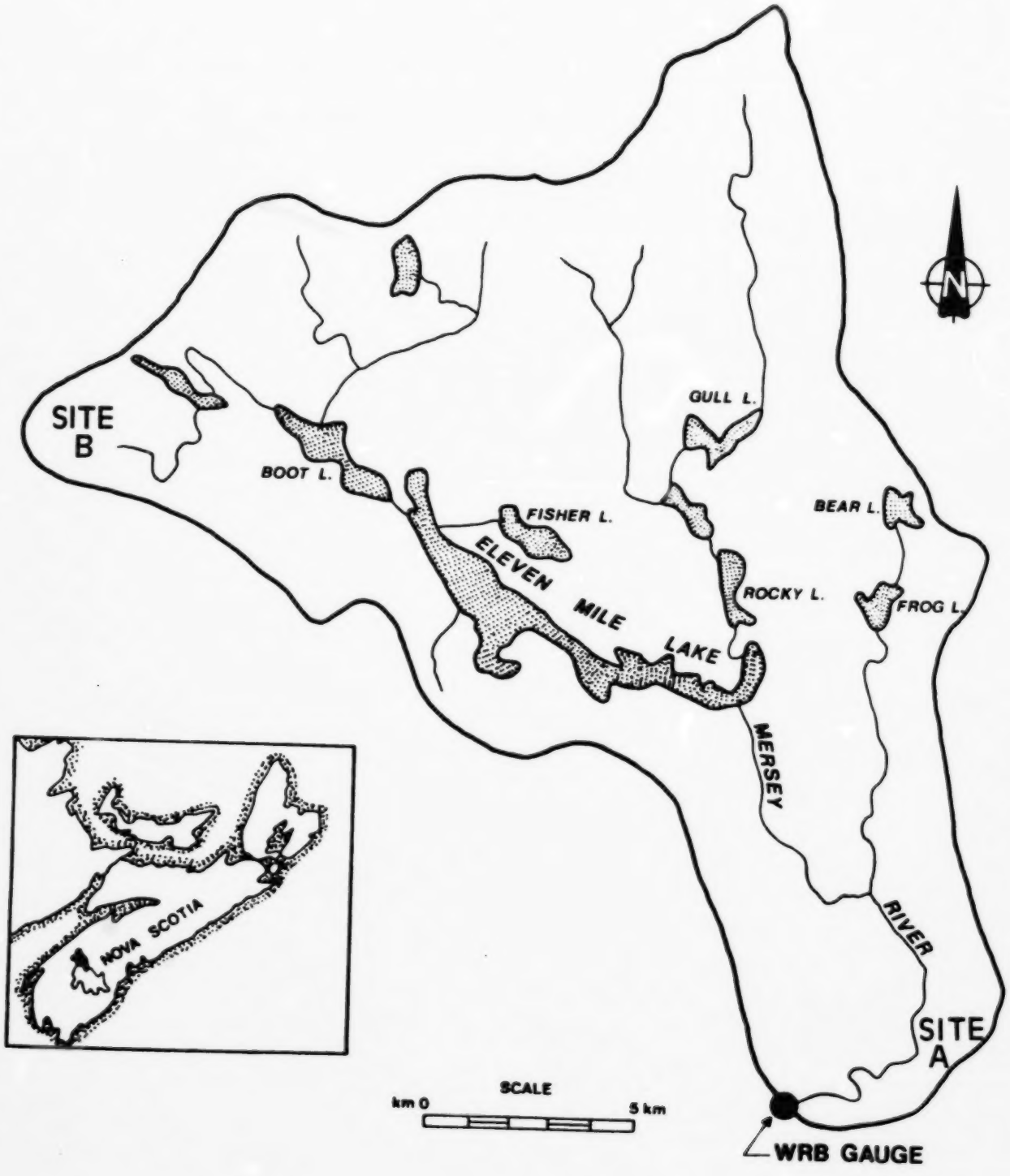

SITE B
BOOT L.
GULL L.
FISHER L.
BEAR L.
ELEVEN MILE LAKE
ROCKY L.
FROG L.
MERSEY
RIVER
SITE A
WRB GAUGE
N
NOVA SCOTIA
SCALE
km 0
5 km

FIGURE 2A: SNOW DEPTH AT SITES A AND B

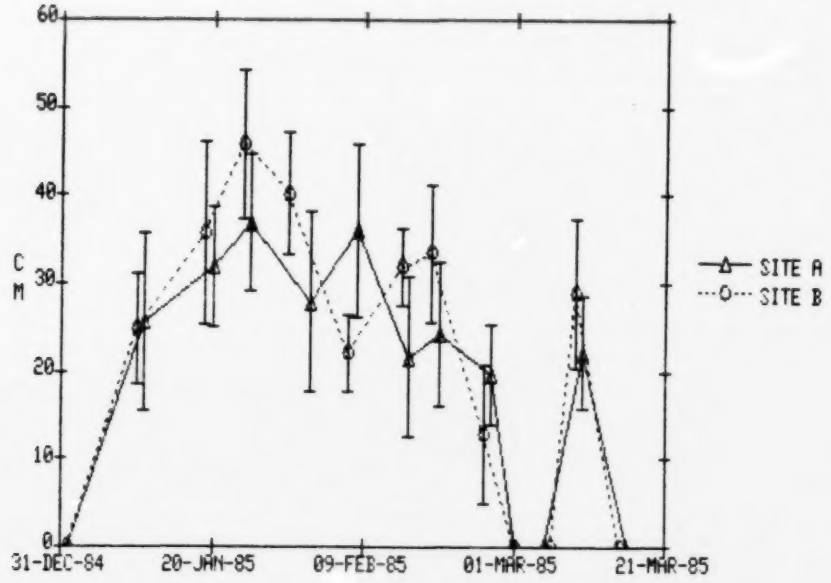


FIGURE 2B: SNOW WATER CONTENT AT SITES A AND B

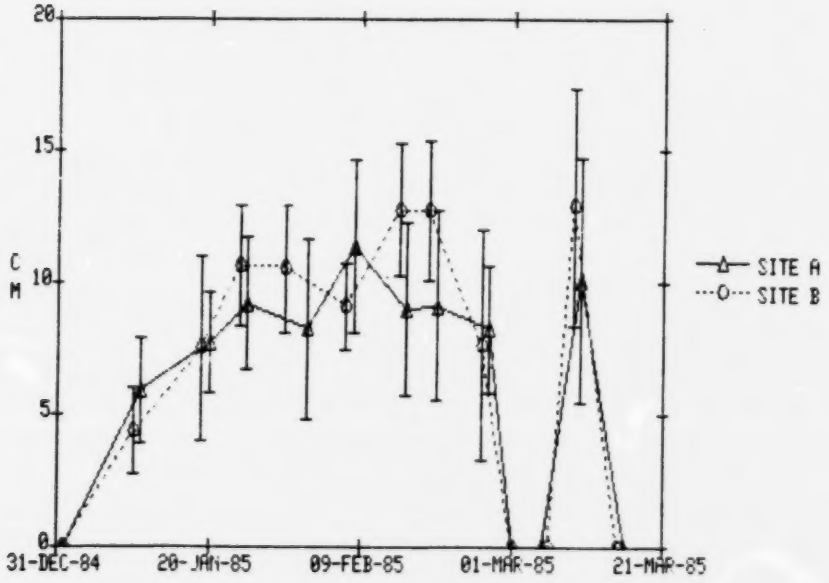


FIGURE 3A: GEOMETRIC MEAN PH AT SITES A AND B

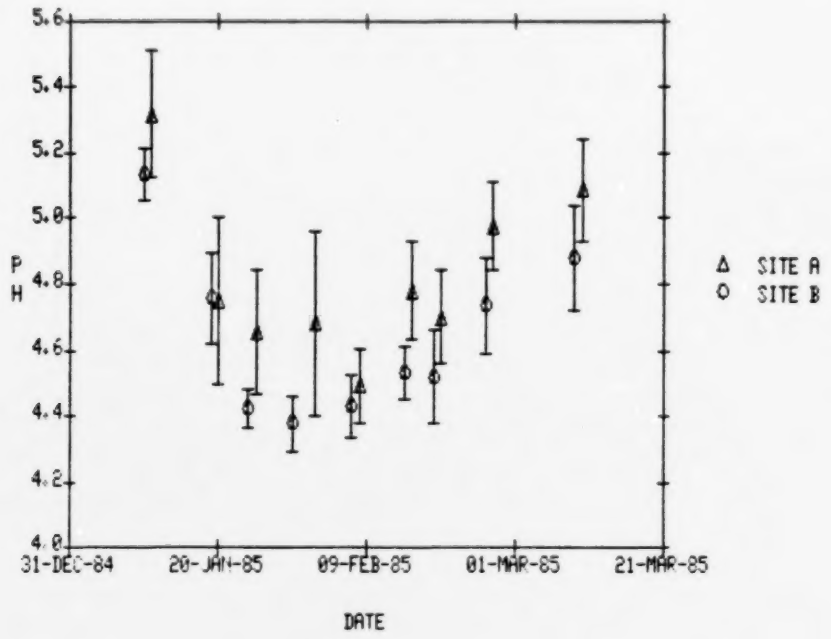


FIGURE 3B: MEAN SNOW CHLORIDE AT SITES A AND B

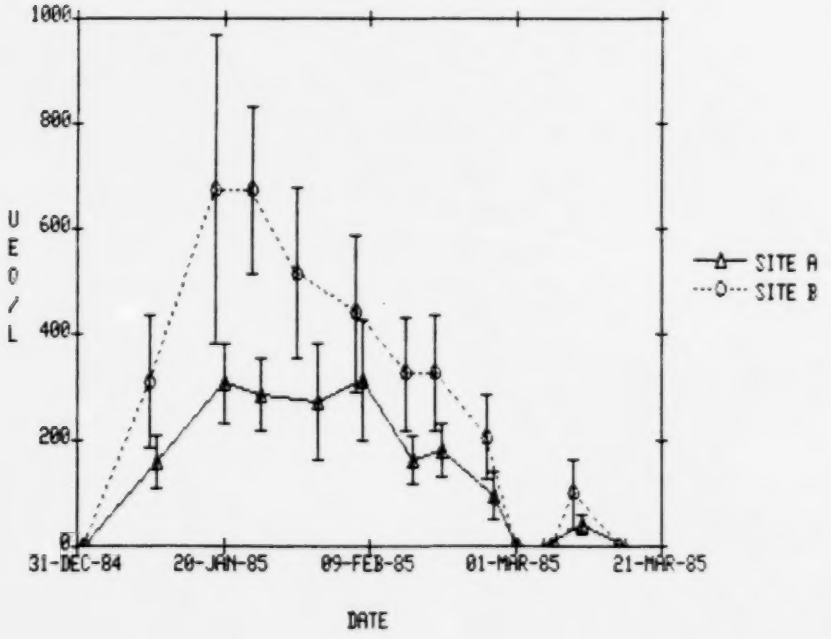


FIGURE 3C: MEAN SNOW SULFATE AT SITES A AND B

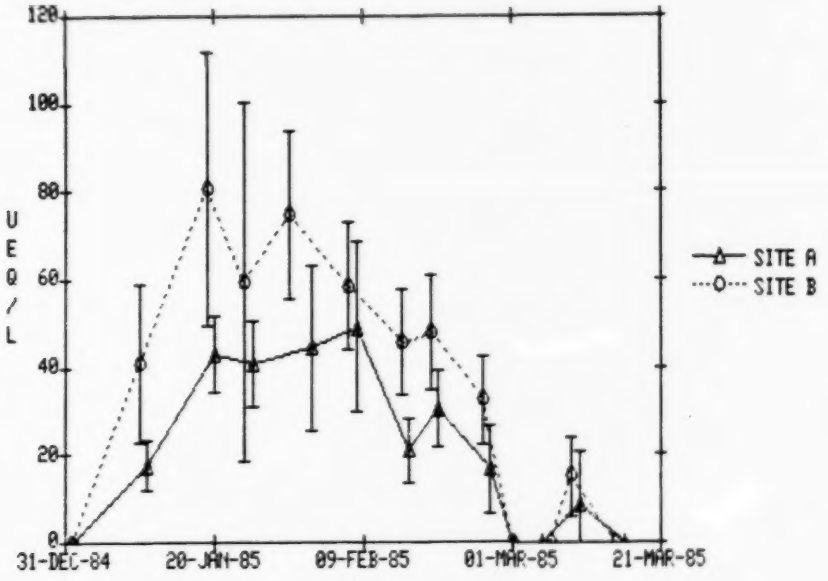


FIGURE 3D: MEAN SNOW NITRATE AT SITES A AND B

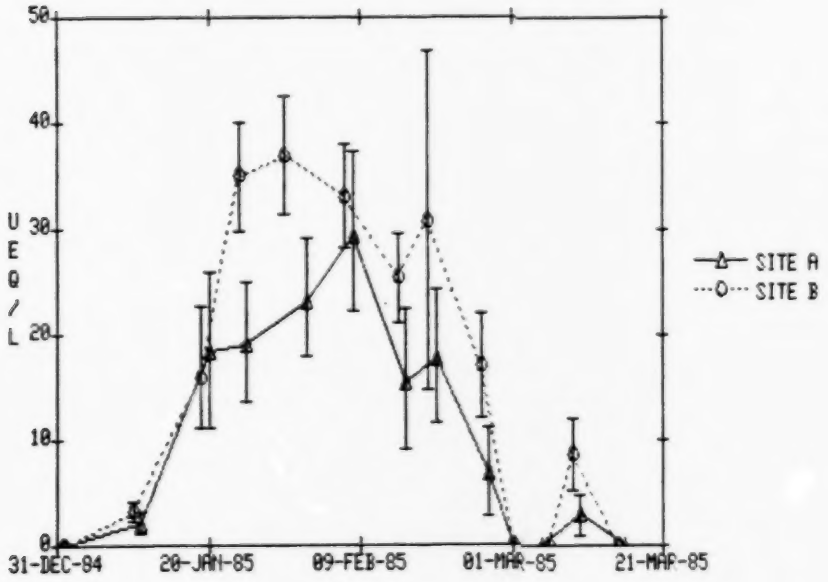


FIGURE 4A: SEASALT CORRECTED SULFATE IN SNOW AT SITES A AND B

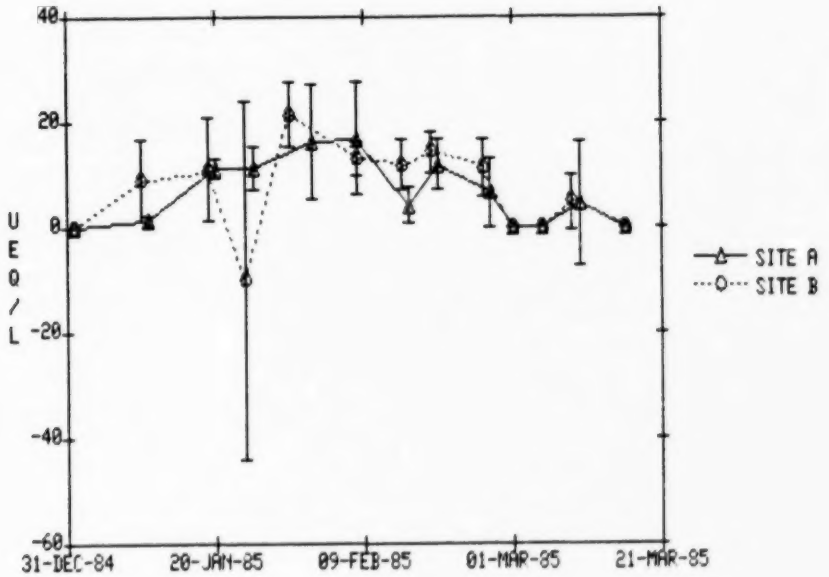


FIGURE 4B: SEASALT CORRECTED CALCIUM IN SNOW AT SITES A AND B

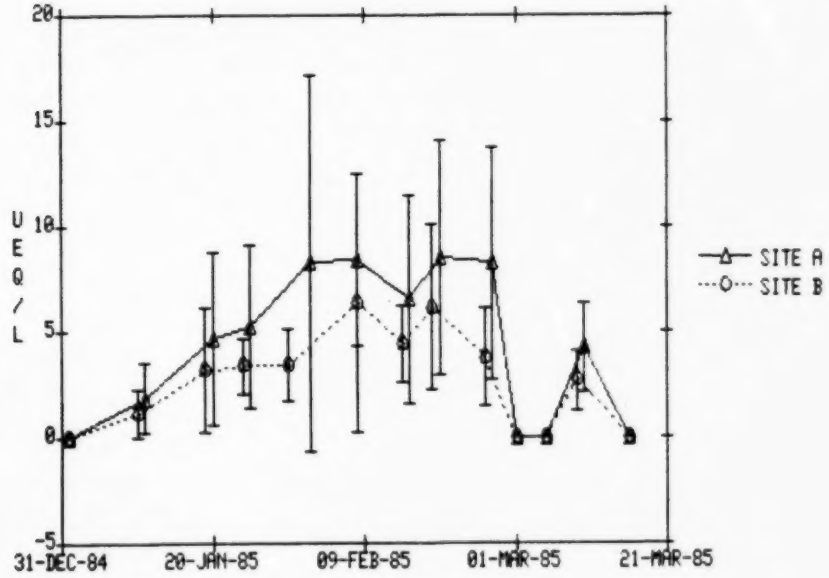


FIGURE 4C: SEASALT CORRECTED MAGNESIUM IN SNOW AT SITES A AND B

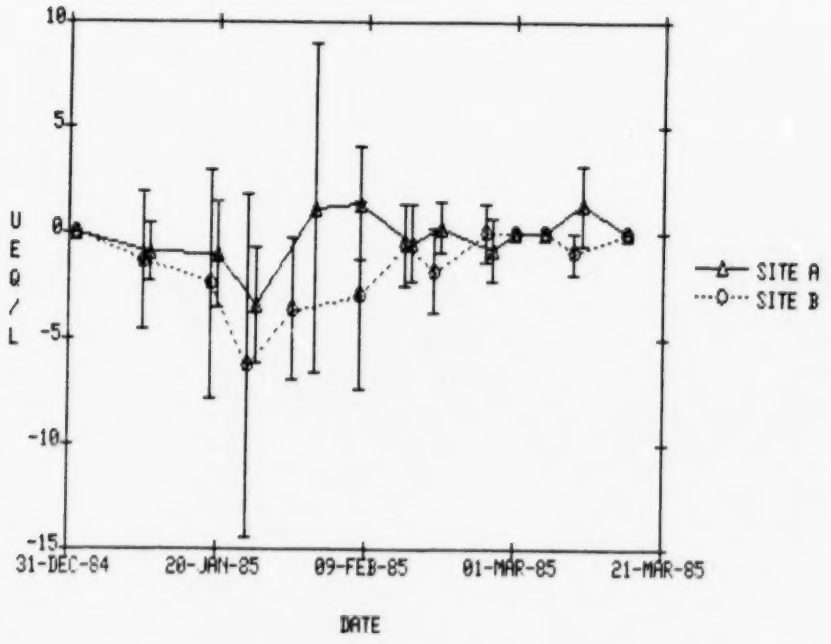


FIGURE 4D: SEASALT CORRECTED POTASSIUM IN SNOW AT SITES A AND B

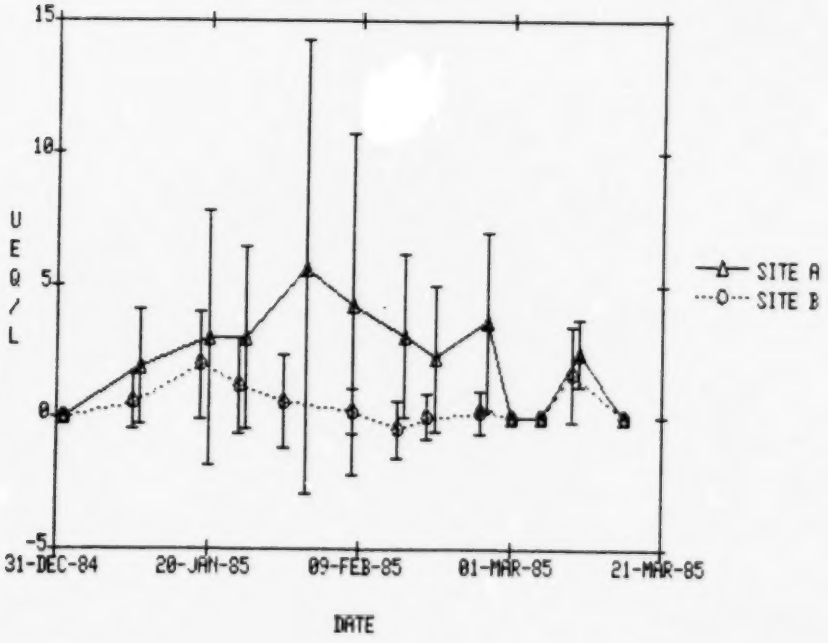


FIGURE 4E: SEASALT CORRECTED SODIUM IN SNOW AT SITES A AND B

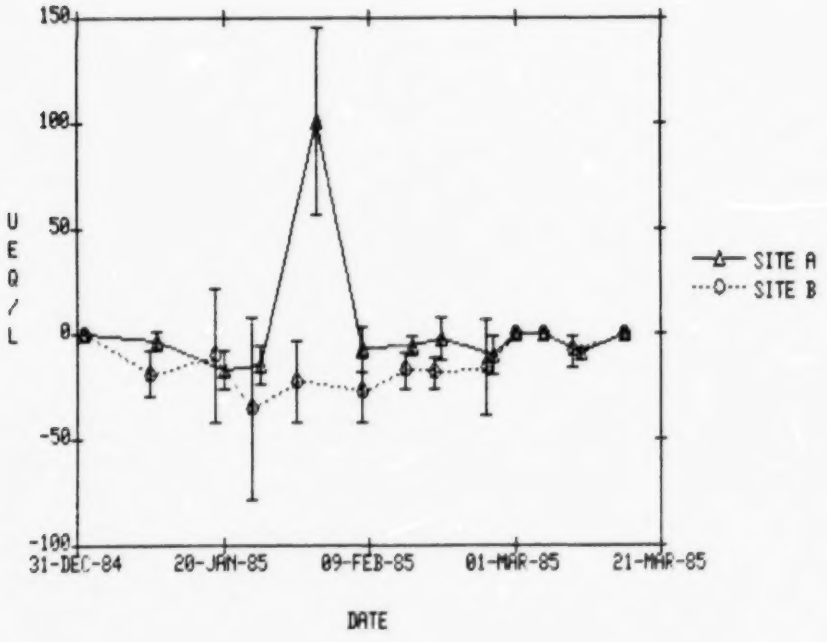


FIGURE 5A: RELATIVE CONTRIBUTION OF NITRIC AND SULFURIC ACIDS IN THE SNOWPACK AT SITE A

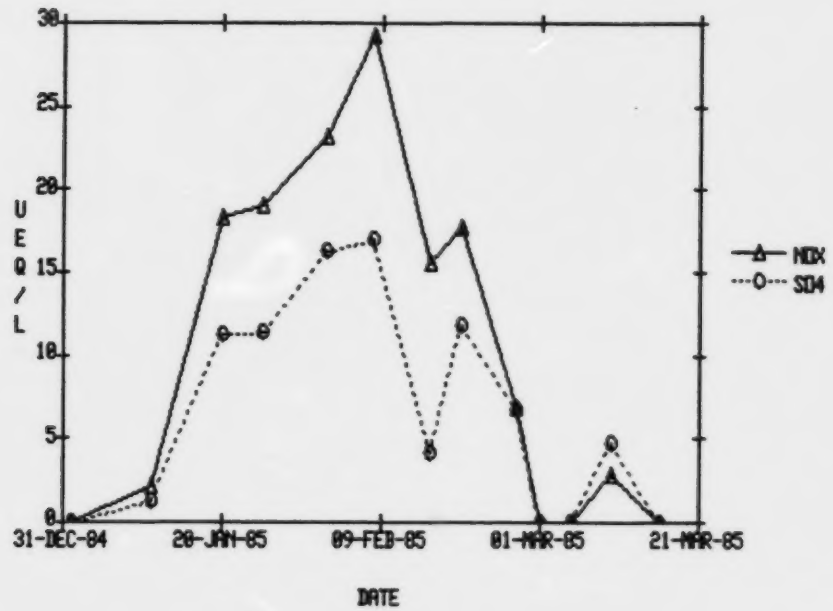


FIGURE 5B: RELATIVE CONTRIBUTION OF NITRIC AND SULFURIC ACIDS IN THE SNOWPACK AT SITE B

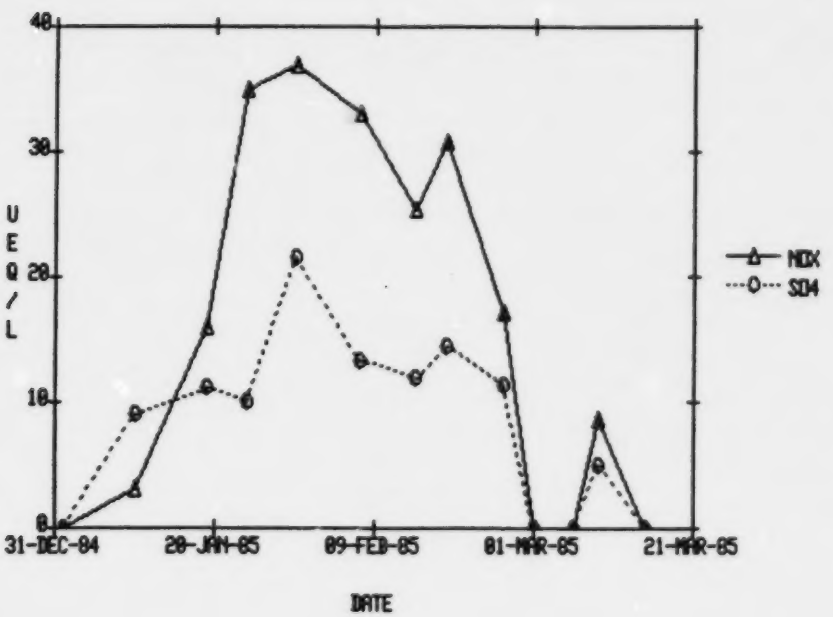


FIGURE 6A: SNOW HYDROGEN VERSUS NOX + SO4 AT SITE A

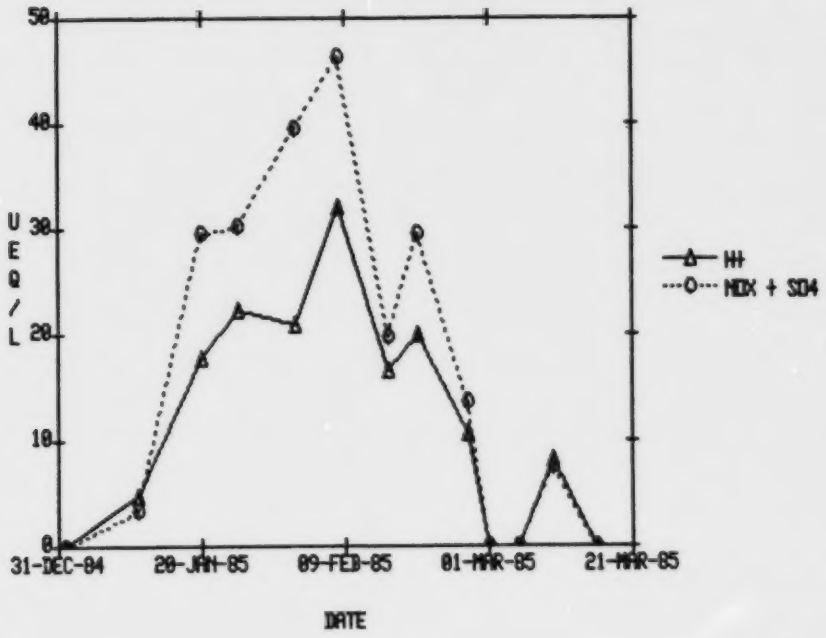
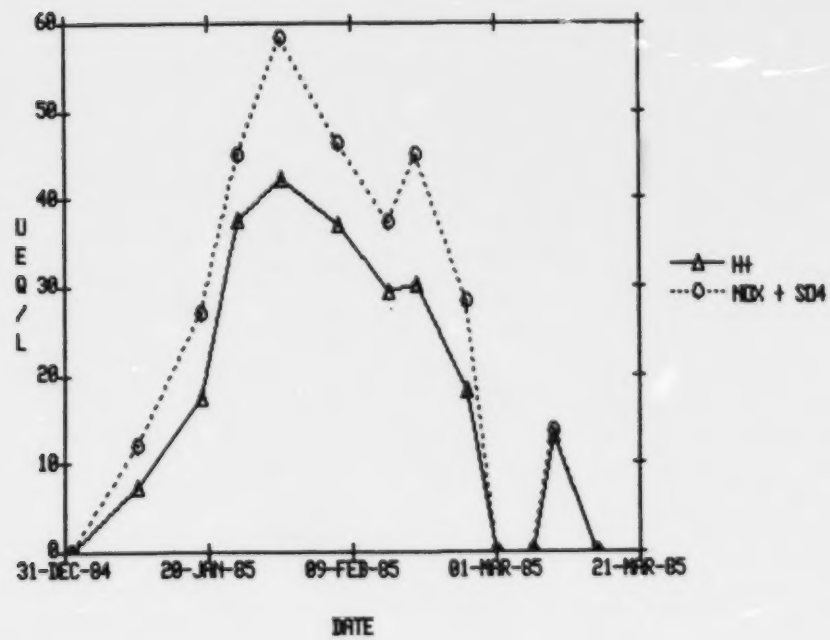


FIGURE 6B: SNOW HYDROGEN VERSUS NOX + SO4 AT SITE B



APPENDIX A

ATMOSPHERIC ENVIRONMENT SERVICE

WEATHER SUMMARY FOR THE KEJIMKUJIK

AREA OVER THE SAMPLING SEASON

APPENDIX Ai

CLIMATE SUMMARY FOR KEJIMKUJIK PARK, N.S., JANUARY 1985

DATE	TEMPERATURE			TOTAL				JULIAN DAY
	MAX	MIN	MEAN	RAIN mm	SNOW cm	PCP mm	GND cm	
1	1.0	-13.0	- 6.0		8.0	8.0		1
2	4.5	- 8.0	- 1.8	.5		.5		2
3	- 5.0	- 7.5	- 6.3				7.	3
4	- 3.5	-16.0	- 9.8		5.0	5.0		4
5	- 2.0	- 9.0	- 5.5		47.0	47.0	12.	5
6	- 9.5	-12.0	-10.8				52.	6
7	-10.0	-15.0	-12.5				43.	7
8	- 6.5	-15.0	-10.8		2.0	2.0	30.	8
9	-11.0	-14.0	-12.5		4.0	4.0	30.	9
10	- 7.5	-14.0	-10.8		2.0	2.0	25.	10
11	- 7.5	-14.0	-10.8				25.	11
12	- 6.5	-14.5	-10.5		T[1]	T	25.	12
13	- 7.5	-13.0	-10.3		T	T	25.	13
14	.5	-13.0	- 6.3				25.	14
15	.5	- 3.0	- 1.3		22.0	22.0	25.	15
16	-10.0	-12.0	-11.0				20.	16
17	- 9.0	-15.0	-12.0				10.	17
18	- 6.5	-20.5	-13.5				10.	18
19	- 1.5	-26.0	-13.8		12.0	12.0	10.	19
20	- 1.0	- 7.5	- 4.3		25.0	25.0	22.	20
21	- 9.0	-15.0	-12.0		12.0	12.0	47.	21
22	- 4.5	-13.5	- 9.0				28.	22
23	- 1.0	- 6.0	- 3.5				28.	23
24	- .5	-13.5	- 7.0		T	T	20.	24
25	- 1.5	-15.5	- 8.5		10.0	10.0	20.	25
26	- 4.5	- 6.0	- 5.3		5.0	5.0	30.	26
27	- 7.0	-12.5	- 9.8				30.	27
28	- 4.5	-14.0	- 9.3				26.	28
29	- 3.0	-11.0	- 7.0				26.	29
30	- 4.0	-14.0	- 9.0				26.	30
31	- 1.0	-25.0	-13.0				26.	31
Total	-138.5	-408.0		.5	154.0	154.5		
Mean	- 4.5	-13.2	- 8.8					

Monthly Maximum Temperature was 4.5 on Day 2
Monthly Minimum Temperature was - 26.0 on Day 19
Highest Rainfall was .5 on Day 2
Highest Snowfall was 47.0 on Day 5

1 - Trace

APPENDIX Aii

CLIMATE SUMMARY FOR KEJIMKUJIK PARK, N.S., FEBRUARY 1985

DATE	TEMPERATURE			TOTAL			SNOW	JULIAN DAY
	MAX	MIN	MEAN	RAIN mm	SNOW cm	PCP mm	GND cm	
1	- 1.0	-15.0	- 8.0		10.0	10.0	30.	32
2	.5	- 3.0	- 1.3	2.6	12.0	14.6	30.	33
3	- 5.5	- 7.0	- 6.3				38.	34
4	- 7.0	-27.0	-17.0				38.	35
5	- 8.0	-23.0	-15.5				38.	36
6	-12.0	-19.0	-15.5				33.	37
7	- 8.5	-23.5	-16.0		T[1]	T	30.	38
8	- 5.5	-17.0	-11.3		T	T	30.	39
9	.5	-13.0	- 6.3		1.0	1.0	30.	40
10	1.5	- 1.0	.3				30.	41
11	3.0	- 4.0	- .5				30.	42
12	- 1.5	-10.5	- 6.0		T	T	30.	43
13	6.5	- 5.0	.8	42.4	T	42.4	28.	44
14	4.5	.5	2.5				18.	45
15	4.0	- 1.5	1.3		1.0	1.0	15.	46
16	1.5	- 3.0	- .8				15.	47
17	3.0	- 4.0	- .5		2.0	2.0	15.	48
18	2.0	- 4.0	- 1.0		5.0	5.0	18.	49
19	1.5	-14.0	- 6.3		9.0	9.0	18.	50
20	1.0	- 8.5	- 3.8				25.	51
21	- 3.5	-16.5	-10.0				N.D.[2]	52
22	5.5	-16.5	- 5.5	12.0		12.0	N.D.	53
23	8.5	- 4.0	2.3	8.3		8.3	12.	54
24	1.5	.5	1.0	7.1		7.1	10.	55
25	5.0	- 6.0	- .5		T	T	10.	56
26	2.5	-14.0	- 5.8	T		T	8.	57
27	5.5	- 3.0	1.3	T	6.0	6.0	0	58
28	- 4.0	-10.5	- 7.3				6.	59
Total	1.5 - 272.5			72.4	46.0	118.4		
Mean	.1 - 9.7		- 4.8					

Monthly Maximum Temperature was 8.5 on Day 23
Monthly Minimum Temperature was -27.0 on day 4
Highest Rainfall was 42.4 on Day 13
Highest Snowfall was 12.0 on Day 2

1 - Trace

2 - No data

APPENDIX Aiii

CLIMATE SUMMARY FOR KEJIMKUJIK PARK, N.S., MARCH 1985

DATE	TEMPERATURE			TOTAL				JULIAN DAY
	MAX	MIN	MEAN	RAIN mm	SNOW cm	PCP mm	GND cm	
1	6.5	-17.5	- 5.5				0	60
2	5.5	0.0	2.8	16.5		16.5	0	61
3	0.0	- 2.0	- 1.0				0	62
4	- 7.0	-15.0	-11.0		12.0	12.0	0	63
5	- 1.5	-12.0	- 6.8		T[1]	T	12.	64
6	- 8.0	-18.0	-13.0				12.	65
7	1.5	-23.5	-11.0		1.0	1.0	12.	66
8	3.5	- 7.5	- 2.0	8.5		8.5	10.	67
9	4.5	- 2.0	1.3				9.	68
10	7.0	- 7.0	0.0				8.	69
11	9.0	- 6.5	1.3				6.	70
12	8.5	- 3.0	2.8	49.4		49.4	0	71
13	7.0	3.0	5.0	.3		.3	0	72
14	5.5	- 1.5	2.0				0	73
15	6.0	- 1.0	2.5				0	74
16	- 1.0	- 7.0	- 4.0				0	75
17	7.0	-11.0	- 2.0		T	T	0	76
18	- 4.0	- 7.0	- 5.5		6.0	6.0	6.	77
19	- 3.0	-10.0	- 6.5				0	78
20	6.5	-15.5	- 4.5		4.0	4.0	0	79
21	- 5.0	- 9.5	- 7.3				0	80
22	1.5	- 9.5	- 4.0				0	81
23	9.0	- 6.0	1.5				0	82
24	4.0	- 7.0	- 1.5				0	83
25	- .5	- 9.0	- 5.5				0	84
26	- 2.0	- 9.0	- 5.5				0	85
27	7.0	-10.5	- 1.8	T		T	0	86
28	12.0	- 3.0	4.5	1.8		1.8	0	87
29	13.5	0.0	6.8				0	88
30	8.0	- 1.0	3.5				0	89
31	3.5	- 3.0	.3				T	90
Total	104.5	-231.5		76.5	23.0	99.5		
Mean	3.4	- 7.5	- 2.0					

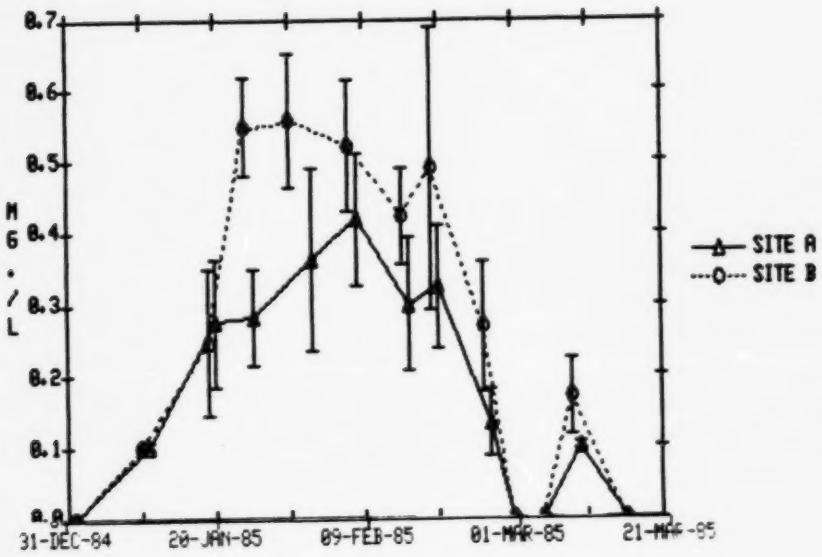
Monthly Maximum Temperature was 13.5 on Day 29
Monthly Minimum Temperature was - 23.5 on Day 7
Highest Rainfall was 49.4 on Day 12
Highest Snowfall was 12.0 on Day 4

1 - Trace

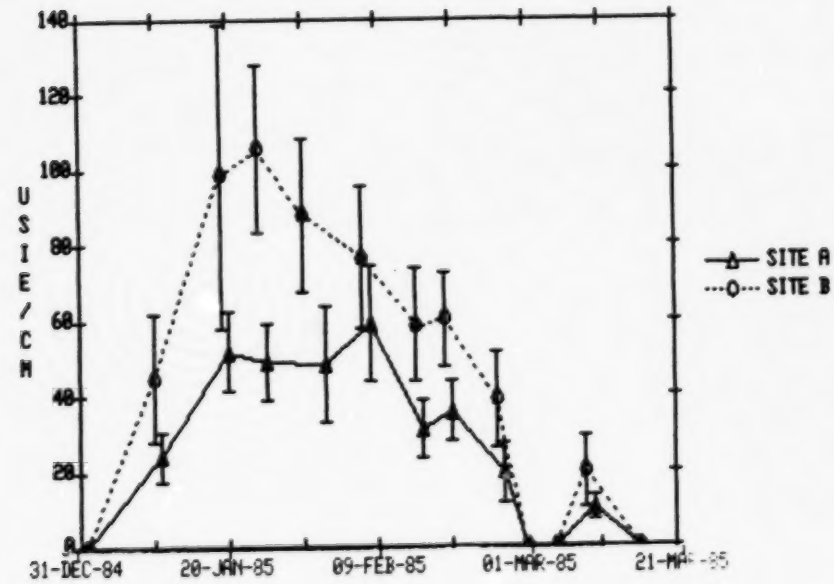
APPENDIX B

MEAN AND STANDARD DEVIATION OF PARAMETER VALUES OVER THE SAMPLING SEASON

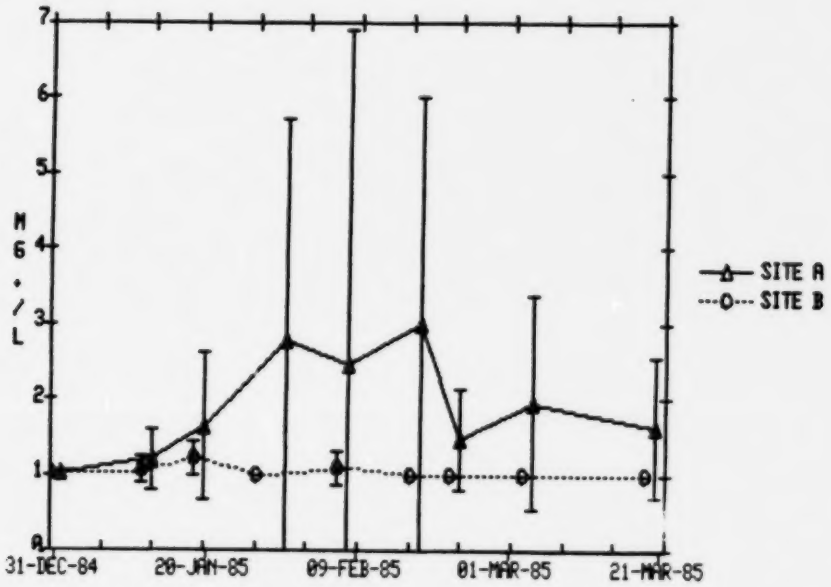
APPENDIX BI: MEAN SNOW TOTAL NITROGEN
AT SITES A AND B



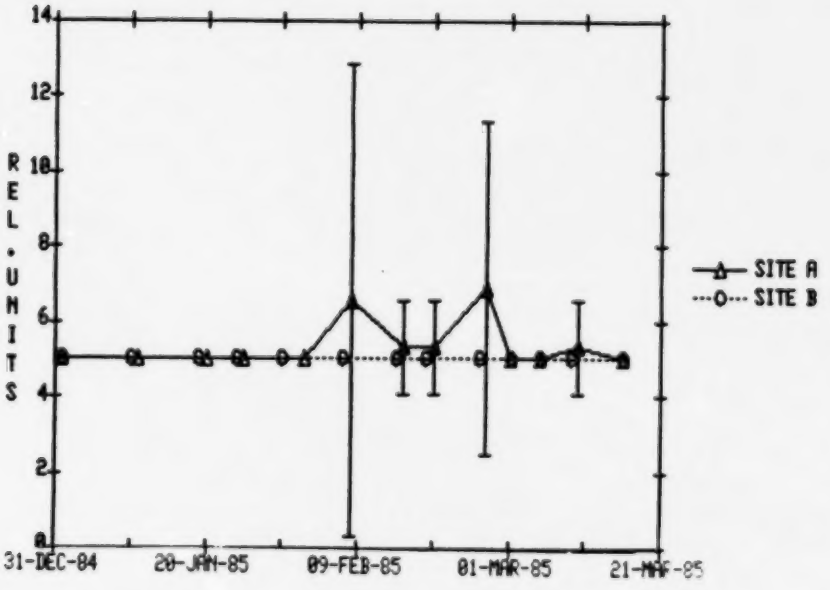
APPENDIX BII: MEAN SNOW CONDUCTANCE AT SITES A AND B



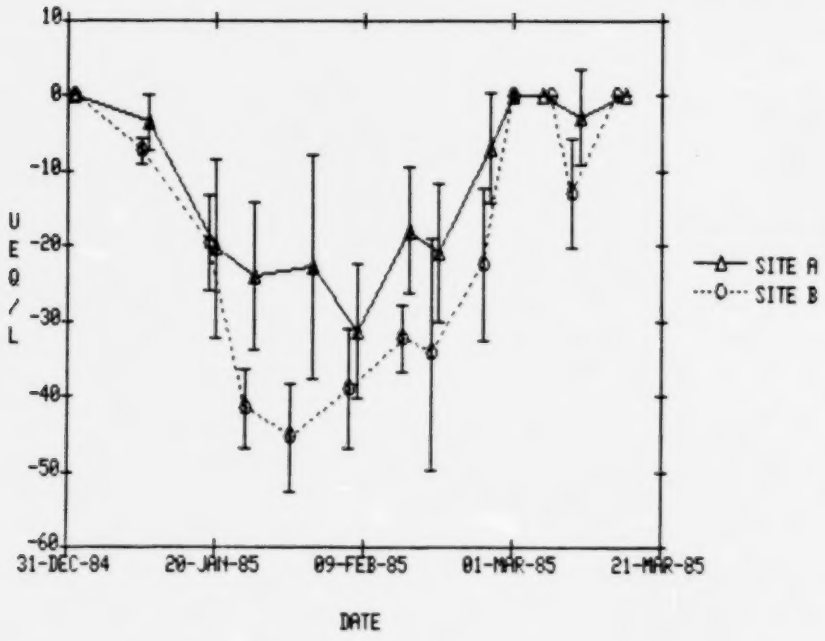
APPENDIX BIII: MEAN SNOW DOC AT SITES A AND B



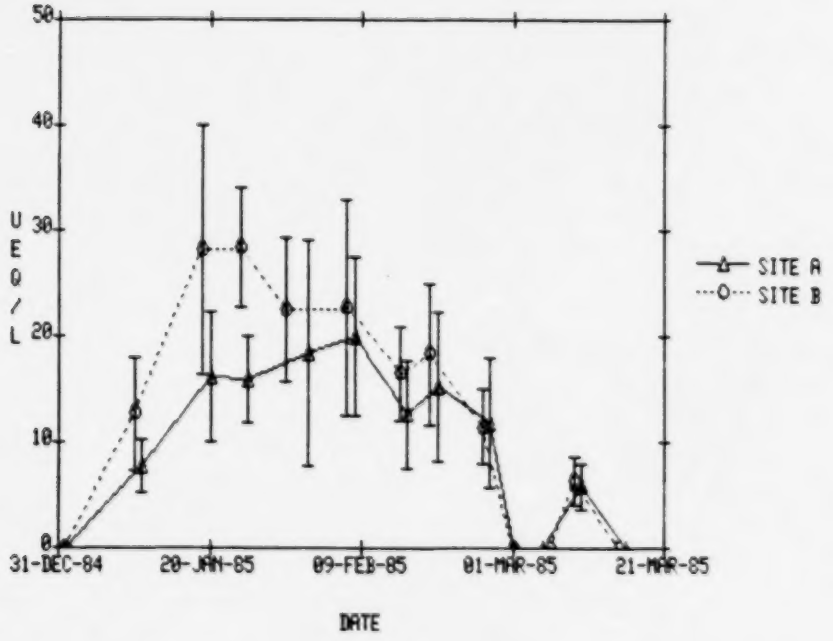
APPENDIX BIV: MEAN SNOW COLOUR AT SITES A AND B



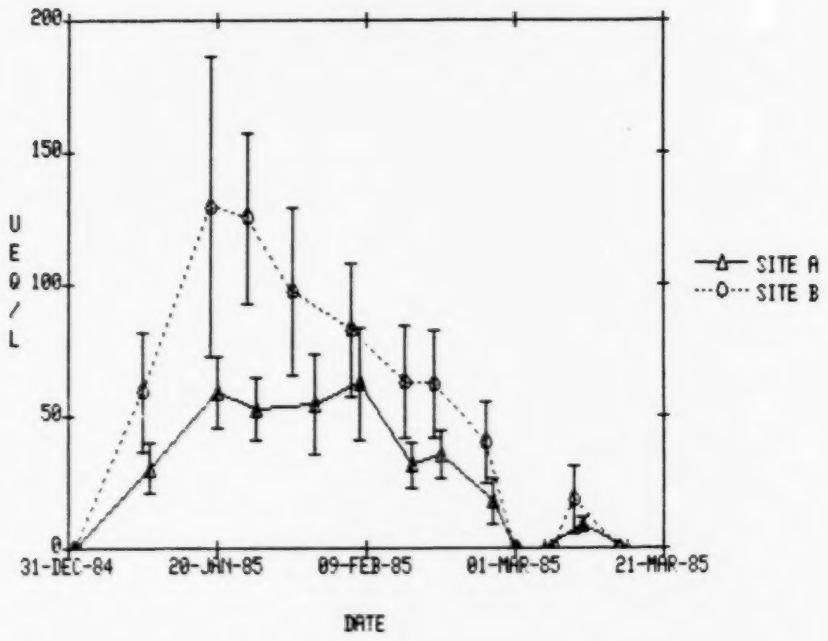
APPENDIX BV: MEAN SNOW GRAN ALKALINITY AT SITES A AND B



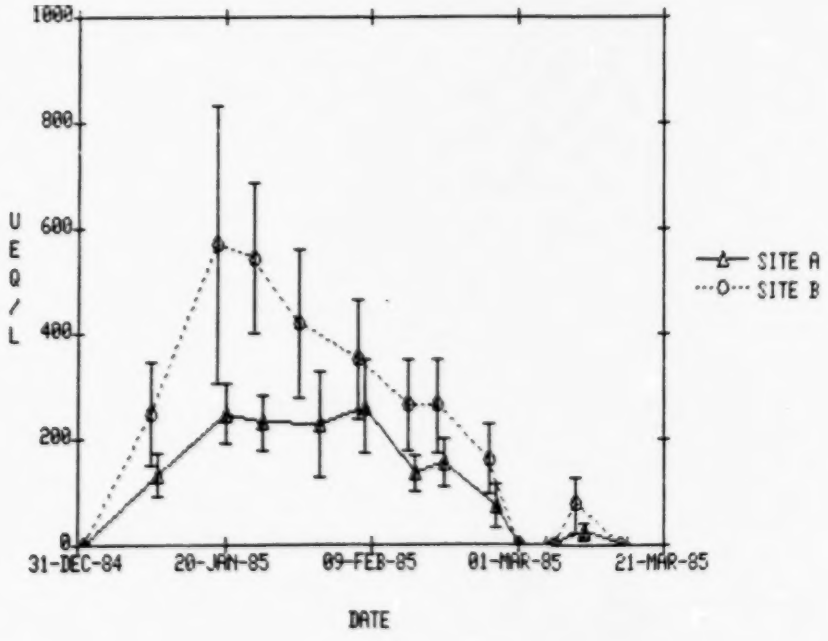
APPENDIX BVI: MEAN SNOW CALCIUM AT SITES A AND B



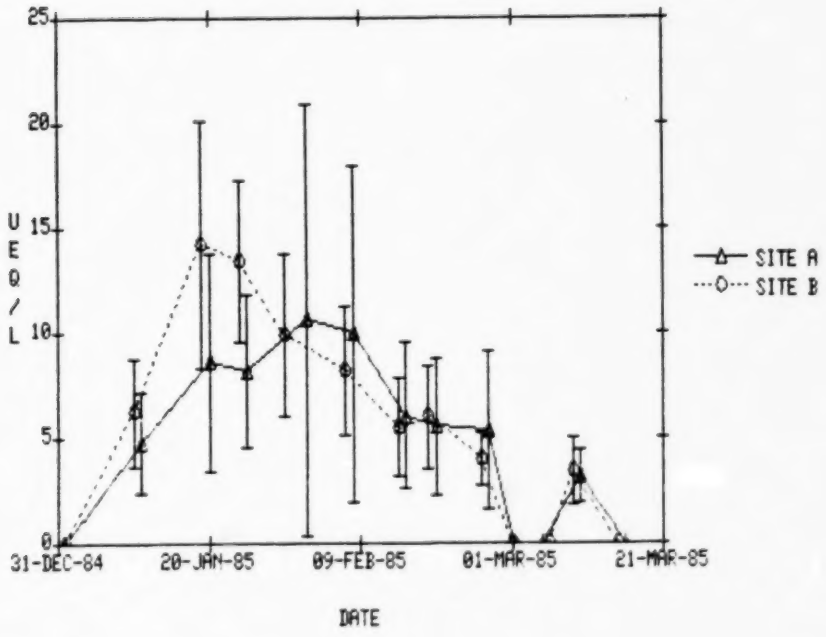
APPENDIX BVII: MEAN SNOW MAGNESIUM AT SITES A AND B



APPENDIX BVIII: MEAN SNOW SODIUM AT SITES A AND B



APPENDIX BIX: MEAN SNOW POTASSIUM AT SITES A AND B



APPENDIX C

RAW SNOW CHEMISTRY AND PHYSICAL

DATA FROM THE 1985 SAMPLING PROGRAM

SITE A SNOW CHEMISTRY AND WATER CONTENT ON JAN. 11,1985
(VALUES IN UEQ/L)

STN	H	COND. USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NOX	SO4 MTB
OPEN	6.3	22.0	0.3	6.5	1.0	2.8	20.8
1	10.0	47.0	0.3	13.0	1.0	4.3	31.2
2	6.3	21.0	0.4	6.5	1.2	0.7	20.8
3	4.0	21.0	0.3	6.0	1.0	2.1	20.8
4	2.0	24.0	0.3	7.0	1.0	2.1	20.8
5	5.0	26.0	0.3	8.5	1.0	2.1	25.0
6	6.3	23.0	0.4	6.5	1.0	2.8	20.8
7	6.3	24.0	0.5	6.5	1.0	2.1	20.8
8	6.3	25.0	0.5	7.5	1.0	2.1	20.8
9	2.5	27.0	0.7	12.5	1.0	2.8	20.8
10	6.3	23.0	0.6	7.5	1.0	2.8	20.8
11	2.5	23.0	0.6	11.5	1.0	1.4	20.8
12	6.3	20.0	0.3	5.5	1.0	2.1	20.8
13	4.0	17.0	0.6	6.0	1.0	0.7	20.8
14	6.3	24.0	0.4	7.5	1.0	2.1	20.8
15	3.2	16.0	0.6	5.5	1.0	0.7	20.8

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	SNOW DEPTH	SNOW WATER
16.6	-6.0	27.1	3.3	113.1	146.6	0.1	30.0	8.0
37.4	-8.0	62.5	7.7	269.7	324.3	0.1	30.0	6.0
14.6	-4.0	25.5	4.1	113.1	141.0	0.1	16.0	4.0
14.6	-2.0	25.5	5.1	113.1	138.2	0.1	34.0	8.0
18.7	2.0	30.4	12.3	139.2	160.7	0.1	24.0	6.0
18.7	-6.0	33.7	4.1	147.9	169.2	0.1	10.0	2.0
16.6	-6.0	29.6	3.3	126.2	152.3	0.1	34.0	8.0
18.7	-6.0	30.4	3.3	139.2	160.7	0.1	12.0	4.0
16.6	-6.0	27.9	3.3	134.8	160.7	0.1	12.0	4.0
18.7	4.0	34.5	6.4	152.2	174.8	0.1	34.0	8.0
16.6	-6.0	28.8	5.6	130.5	152.3	0.1	28.0	6.0
16.6	4.0	32.9	4.1	126.2	155.1	0.1	46.0	8.0
14.6	-6.0	24.7	3.3	108.7	129.7	0.1	30.0	6.0
12.5	-4.0	20.5	3.3	87.0	112.8	0.1	14.0	4.0
18.7	-4.0	28.8	3.3	130.5	157.9	0.1	30.0	8.0
12.5	-2.0	18.9	4.1	82.7	101.5	0.1	26.0	4.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON JAN. 20,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND.	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	25.1	40.0	0.3	9.5	1.0	22.1	31.2
1	31.6	57.0	0.5	13.5	1.0	26.3	41.6
2	20.0	51.0	0.8	13.5	1.0	17.1	41.6
3	20.0	41.0	0.5	10.0	1.0	19.9	31.2
4	12.6	41.0	0.7	20.0	1.6	17.1	35.4
5	20.0	46.0	0.4	12.5	1.0	17.1	41.6
6	20.0	54.0	0.8	14.5	1.1	19.9	52.0
7	25.1	53.0	0.5	13.5	1.0	22.1	41.6
8	20.0	64.0	0.6	21.0	1.4	25.6	54.1
9	25.1	56.0	0.4	15.0	1.0	22.8	45.8
10	31.6	59.0	0.5	15.0	1.0	25.6	45.8
11	25.1	44.0	0.5	10.0	1.0	19.2	35.4
12	4.0	48.0	1.1	22.5	2.4	2.8	45.8
13	15.8	46.0	0.5	14.5	1.0	12.8	35.4
14	20.0	81.0	1.2	33.4	1.6	21.4	66.6
15	5.0	44.0	1.1	20.0	1.0	0.7	41.6

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
31.2	-27.8	41.1	4.1	174.0	211.5	0.3	30.0	8.0
43.7	-33.8	60.8	6.4	252.3	318.7	0.4	36.0	10.0
45.8	-21.9	58.4	6.4	247.9	310.2	0.3	18.0	6.0
31.2	-21.9	45.2	5.1	182.7	231.2	0.3	30.0	8.0
37.4	-13.9	48.5	6.4	200.1	245.3	0.2	22.0	4.0
39.5	-21.9	54.3	5.6	221.8	270.7	0.2	36.0	8.0
41.6	-21.9	60.8	9.5	252.3	318.7	0.3	26.0	6.0
41.6	-27.8	59.2	6.4	243.6	293.3	0.3	36.0	8.0
54.1	-23.9	78.9	12.3	313.2	386.3	0.4	36.0	8.0
43.7	-29.8	63.3	7.7	261.0	324.3	0.3	42.0	10.0
47.8	-31.8	64.9	6.4	274.1	346.9	0.4	36.0	12.0
37.4	-25.9	47.7	5.1	195.7	245.3	0.3	34.0	6.0
43.7	11.9	58.4	25.6	261.0	318.7	0.1	22.0	6.0
41.6	-17.9	55.1	7.7	234.9	287.6	0.2	38.0	8.0
68.6	-17.9	98.6	11.0	413.2	535.8	0.3	38.0	8.0
41.6	2.0	51.8	12.3	226.2	290.5	0.1	32.0	8.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON JAN. 25,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND.	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
1	20.0	51.0	0.4	12.5	1.1	24.9	41.6
2	12.6	55.0	0.6	20.0	2.3	20.6	47.8
3	25.1	53.0	0.5	14.5	1.0	21.4	43.7
4	39.8	77.0	0.8	22.5	1.9	29.9	66.6
5	25.1	53.0	0.6	13.5	1.3	19.9	43.7
6	25.1	57.0	0.6	15.5	1.0	20.6	47.8
7	20.0	40.0	0.4	14.5	1.6	14.9	37.4
8	25.1	43.0	0.5	15.0	1.3	17.8	37.4
9	25.1	38.0	0.4	15.5	1.3	18.5	33.3
10	6.3	36.0	0.7	22.5	4.7	4.3	39.5
11	25.1	40.0	0.5	9.0	1.0	17.1	37.4
12	31.6	48.0	0.5	13.0	1.0	22.1	41.6
13	31.6	52.0	0.3	13.0	1.6	17.1	47.8
14	25.1	42.0	0.7	15.5	1.0	21.4	39.5
15	20.0	50.0	0.9	22.5	2.3	13.5	47.8

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
41.6	-21.9	54.3	7.7	239.3	296.1	0.3	48.0	10.0
49.9	-9.9	62.5	14.1	265.4	321.5	0.2	26.0	8.0
45.8	-29.8	59.2	6.9	252.3	318.7	0.3	28.0	8.0
66.6	-37.8	82.2	10.2	369.8	479.4	0.5	24.0	4.0
43.7	-29.8	56.7	6.4	252.3	318.7	0.3	38.0	12.0
41.6	-27.8	63.3	10.8	282.8	341.2	0.3	32.0	6.0
29.1	-21.9	41.1	4.4	187.0	234.1	0.2	50.0	14.0
37.4	-27.8	45.2	5.1	195.7	234.1	0.3	34.0	8.0
29.1	-27.8	37.0	6.9	169.7	200.2	0.3	42.0	10.0
33.3	2.0	41.1	16.9	182.7	231.2	0.2	42.0	10.0
33.3	-23.9	41.1	5.1	178.3	211.5	0.3	42.0	10.0
41.6	-31.8	49.3	5.1	208.8	267.9	0.3	40.0	10.0
41.6	-27.8	56.7	6.4	247.9	304.6	0.3	34.0	8.0
31.2	-25.9	43.6	6.4	187.0	239.7	0.3	42.0	12.0
47.8	-15.9	54.3	10.2	239.3	296.1	0.3	32.0	8.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON FEB. 2,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND. USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	31.6	32.0	0.3	7.5		23.5	39.5
1	39.8	53.0	0.4	10.0	1.1	31.3	39.5
2	31.6	70.0	0.8	18.5	2.0	33.5	64.5
3	31.6	53.0	0.5	17.0		29.2	39.5
4	12.6	85.0	1.4	38.9	4.1	24.9	79.0
5	20.0	63.0	1.5	29.9	2.7	23.5	91.5
6	31.6	60.0	0.7	18.5	1.6	27.8	49.9
7	15.8	38.0	0.3	18.0	1.1	22.8	31.2
8	20.0	34.0	0.4	10.5	1.0	19.2	29.1
9	3.2	34.0	1.4	41.9	3.6	20.6	33.3
10	25.1	30.0	0.3	8.5	1.0	19.9	22.9
11	31.6	42.0	0.4	9.5	1.0	22.8	31.2
12	15.8	43.0	0.5	25.4	2.3	16.4	41.6
13	31.6	54.0	0.5	18.0	2.3	22.8	45.8
14	10.0	43.0	1.6	13.5	12.0	10.7	66.6
15	31.6	39.0	0.4	9.0		22.1	31.2

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
31.2	-33.8	26.3	2.6	100.1	138.2	0.4	32.0	10.0
39.5	-43.7	49.3	5.1	226.2	256.6	0.5	42.0	12.0
68.6	-33.8	79.7	16.6	356.7	394.8	0.7	24.0	8.0
41.6	-33.8	55.1	6.4	239.3	276.4	0.5	24.0	6.0
74.9	-8.0	98.6	41.0	491.6	564.0	0.3	14.0	4.0
93.6	-19.9	71.5	19.2	326.3	386.3	0.2	22.0	4.0
41.6	-31.8	66.6	10.2	300.2	346.9	0.5	14.0	4.0
35.4	-15.9	61.6	5.1	191.4	220.0	0.3	14.0	6.0
29.1	-19.9	41.1	5.1	156.6	188.9	0.3	42.0	12.0
35.4	17.9	57.5	6.9	165.3	194.6	0.4	42.0	16.0
25.0	-27.8	23.0	3.1	108.7	135.4	0.3	22.0	8.0
33.3	-31.8	41.1	3.8	178.3	211.5	0.4	34.0	8.0
43.7	-11.9	49.3	7.7	221.8	265.1	0.2	30.0	12.0
43.7	-29.8	58.4	8.2	239.3	313.0	0.3	22.0	8.0
43.7	-8.0	54.3	24.8	213.2	270.7	0.2	26.0	6.0
31.2	-29.8	37.0	4.4	156.6	197.4	0.4	42.0	8.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON FEB. 8,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND. USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NOX	SO4 MTB
OPEN	50.1	58.0	0.4	14.5	1.0	39.9	58.2
1	50.1	68.0	0.5	17.5	1.0	34.9	49.9
2	39.8	92.0	3.1	29.4	2.4	49.8	83.2
3	31.6	65.0	1.0	23.0	1.0	32.7	47.8
4	20.0	84.0	2.8	39.9	2.7	23.5	87.4
5	25.1	69.0	1.8	26.9	1.6	28.5	62.4
6	31.6	64.0	1.5	18.5	1.0	29.2	56.2
7	31.6	48.0	0.6	14.5	1.2	23.5	43.7
8	31.6	53.0	0.5	17.0	1.1	26.3	43.7
9	31.6	39.0	0.4	15.5	1.0	28.5	31.2
10	39.8	57.0	0.5	17.0	1.0	33.5	45.8
11	31.6	44.0	0.6	12.5	1.2	25.6	35.4
12	31.6	44.0	0.3	11.5	1.2	24.9	37.4
13	31.6	42.0	0.6	16.5	1.5	21.4	41.6
14	31.6	48.0	0.5	19.0	1.0	22.8	41.6
15	20.0	68.0	2.3	27.4	19.0	22.8	126.9

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH	WATER CM
62.4	-45.7	54.3	5.6	221.8	253.8	0.6	52.0	16.0
56.2	-45.7	66.6	8.2	278.4	332.8	0.5	44.0	14.0
85.3	-39.8	106.9	16.9	443.7	535.8	0.2	22.0	8.0
52.0	-27.8	75.6	8.4	300.2	352.5	0.5	32.0	10.0
77.0	-17.9	98.6	28.2	435.0	535.8	0.4	26.0	8.0
62.4	-25.9	78.9	10.2	330.6	392.0	0.4	24.0	8.0
56.2	-31.8	70.7	8.2	295.8	349.7	0.5	36.0	10.0
37.4	-31.8	46.0	6.4	204.4	234.1	0.4	44.0	14.0
37.4	-29.8	56.7	6.4	239.3	276.4	0.4	22.0	8.0
20.8	-33.8	33.7	4.4	139.2	160.7	0.5	42.0	16.0
41.6	-39.8	55.1	6.4	234.9	270.7	0.5	40.0	12.0
20.8	-29.8	41.9	3.8	174.0	211.5	0.4	42.0	14.0
20.8	-29.8	42.7	3.8	174.0	214.3	0.4	46.0	14.0
52.0	-29.8	41.1	6.9	174.0	208.7	0.4	36.0	10.0
41.6	-27.8	48.5	5.6	204.4	251.0	0.3	44.0	14.0
64.5	-11.9	82.2	29.7	326.3	423.0	0.4	24.0	6.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON FEB. 15,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND. USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NOX	SO4 MTB
OPEN	25.1	27.0	0.4	8.5		22.1	20.8
1	31.6	46.0	0.4	12.5		28.5	35.4
2	12.6	24.0	2.8	9.0	1.3	10.7	25.0
3	12.6	22.0	3.0	20.5	2.0	8.5	20.8
4	15.8	28.0	2.3	9.5		14.9	20.8
5	10.0	33.0	5.7	22.0	2.4	10.7	45.8
6	20.0	40.0	2.9	14.5	1.6	14.9	35.4
7	15.8	36.0	4.1	24.0		13.5	37.4
8	12.6	20.0	1.7	9.0		10.0	20.8
9	10.0	23.0	1.2	10.5		14.2	20.8
10	15.8	29.0	1.2	8.5	1.5	18.5	31.2
11	25.1	45.0	0.8	10.0		29.9	41.6
12	20.0	28.0	1.0	7.5		15.7	25.0
13	20.0	33.0	1.6	11.0		16.4	31.2
14	20.0	30.0	0.6	10.0		14.2	31.2
15	12.6	35.0	2.7	15.5	9.1	5.0	66.6

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
14.6	-29.8	22.2	2.6	91.3	112.8	0.4	34.0	12.0
29.1	-35.8	43.6	5.1	187.0	225.6	0.4	24.0	10.0
14.6	-11.9	25.5	3.8	108.7	124.1	0.2	12.0	6.0
10.4	-8.0	19.7	3.1	91.3	110.0	0.2	16.0	8.0
20.8	-17.9	26.3	9.0	117.5	143.8	0.3	10.0	4.0
31.2	-6.0	38.6	9.0	152.2	183.3	0.2	12.0	6.0
29.1	-19.9	43.6	6.9	182.7	225.6	0.3	22.0	10.0
25.0	-17.9	37.8	6.4	165.3	197.4	0.2	26.0	12.0
10.4	-13.9	19.7	3.1	87.0	101.5	0.2	14.0	6.0
12.5	-11.9	26.3	3.1	104.4	124.1	0.3	38.0	14.0
20.8	-13.9	27.9	8.2	117.5	149.5	0.5	28.0	12.0
31.2	-29.8	46.9	10.0	182.7	228.4	0.5	38.0	14.0
16.6	-17.9	26.3	3.8	117.5	141.0	0.3	18.0	10.0
20.8	-21.9	29.6	3.8	139.2	169.2	0.3	20.0	8.0
20.8	-17.9	32.9	3.8	143.5	172.0	0.3	22.0	8.0
29.1	-9.9	37.8	15.4	165.3	211.5	0.3	12.0	4.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON FEB. 19,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	31.6	39.0	0.3	9.5		26.3	29.1
1	25.1	33.0	0.4	9.0		24.9	29.1
2	15.8	30.0	4.2	12.5		11.4	31.2
3	20.0	28.0	2.1	9.5	1.1	19.2	29.1
4	15.8	52.0	4.3	33.9	2.8	17.1	52.0
5	12.6	39.0	6.2	24.5	2.9	8.5	45.8
6	25.1	44.0	2.8	19.0	1.7	16.4	41.6
7	12.6	17.0	3.1	9.0	1.2	6.4	20.8
8	15.8	29.0	0.7	14.5	1.0	17.8	31.2
9	25.1	36.0	1.5	10.0	1.0	21.4	35.4
10	15.8	35.0	1.8	19.5	1.1	21.4	37.4
11	31.6	45.0	0.8	10.5	1.0	27.0	37.4
12	25.1	43.0	2.4	22.5	1.6	20.6	43.7
13	25.1	35.0	2.1	11.0	1.0	14.2	35.4
14	25.1	36.0	0.7	13.5	1.1	21.4	37.4
15	12.6	33.0	2.2	15.5	1.6	8.5	35.4

SO4-IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
29.1	-33.8	36.2	3.8	152.2	186.1	0.4	28.0	12.0
20.8	-31.8	27.9	3.1	117.5	143.8	0.4	38.0	18.0
20.8	-13.9	32.9	7.7	134.8	160.7	0.2	12.0	6.0
25.0	-23.9	25.5	3.1	113.1	132.5	0.4	28.0	10.0
45.8	-13.9	57.5	9.0	252.3	307.4	0.3	22.0	8.0
41.6	-8.0	43.6	14.6	217.5	214.3	0.2	16.0	6.0
41.6	-25.9	45.2	5.4	191.4	228.4	0.3	24.0	8.0
12.5	-11.9	16.4	2.6	65.3	81.8	0.2	10.0	4.0
25.0	-13.9	31.2	2.6	121.8	152.3	0.3	32.0	12.0
31.2	-25.9	32.9	6.9	139.2	163.6	0.4	30.0	10.0
37.4	-13.9	33.7	7.7	143.5	172.0	0.4	20.0	6.0
33.3	-37.8	38.6	3.8	169.7	197.4	0.4	30.0	12.0
33.3	-23.9	42.7	6.4	195.7	222.8	0.3	12.0	4.0
29.1	-21.9	32.9	2.6	143.5	174.8	0.3	30.0	10.0
31.2	-23.9	34.5	3.8	139.2	169.2	0.4	26.0	10.0
31.2	-8.0	37.0	5.4	152.2	183.3	0.2	30.0	10.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON FEB. 26,1985
(VALUES IN UEQ/L)

STN	HYDOGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	10.0	11.4	0.5	5.0	1.0	7.1	20.8
1	7.9	17.0	0.7	10.0	1.0	7.8	20.8
2	10.0	11.5	5.6	8.5	2.0	2.1	20.8
3	6.3	13.1	3.1	8.0	1.2	6.4	20.8
4	10.0	14.7	2.0	10.0	1.4	6.4	20.8
5	7.9	21.0	2.8	26.9	4.7	4.3	27.0
6	10.0	18.0	4.3	13.0	2.6	2.8	20.8
7	10.0	14.9	0.7	7.0	1.0	7.1	20.8
8	7.9	9.2	1.4	5.0	1.0	5.0	20.8
9	12.6	22.0	4.9	20.0	4.2	5.0	27.0
10	15.8	28.0	2.4	12.5	1.4	12.8	25.0
11	20.0	36.0	1.5	10.5	1.0	17.8	27.0
12	15.8	31.0	1.8	16.5	1.3	10.0	31.2
13	12.6	16.0	2.9	6.5	1.3	5.0	20.8
14	7.9	30.0	3.4	19.5	5.1	0.7	43.7
15	12.6	20.0	3.2	10.0	1.0	9.3	25.0

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
8.3	-9.9	9.0	2.6	30.4	50.8	0.1	30.0	12.0
10.4	-2.0	16.4	5.9	65.3	90.2	0.1	22.0	8.0
4.2	-2.0	9.9	2.6	30.4	47.9	0.1	16.0	6.0
8.3	-2.0	14.8	2.6	43.5	64.9	0.1	22.0	10.0
6.2	-6.0	12.3	2.6	43.5	67.7	0.1	12.0	6.0
16.6	9.9	19.7	9.0	78.3	93.1	0.1	10.0	6.0
12.5	-2.0	14.0	5.9	65.3	84.6	0.1	18.0	8.0
10.4	-8.0	11.5	2.6	43.5	67.7	0.1	24.0	12.0
6.2	-6.0	8.2	2.6	26.1	39.5	0.1	10.0	4.0
14.6	-8.0	17.3	5.9	74.0	95.9	0.1	24.0	8.0
25.0	-17.9	25.5	6.4	113.1	138.2	0.2	18.0	8.0
27.0	-19.9	35.3	3.8	143.5	177.7	0.3	22.0	12.0
31.2	-13.9	32.1	6.4	139.2	172.0	0.2	18.0	8.0
29.1	-11.9	11.5	2.6	60.9	76.1	0.1	26.0	8.0
35.4	-2.0	31.2	16.9	143.5	163.6	0.1	18.0	6.0
20.8	-8.0	17.3	7.9	43.5	98.7	0.2	24.0	10.0

SITE A SNOW CHEMISTRY AND WATER CONTENT ON MAR. 10,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	10.0	7.7	1.2	5.0		3.6	20.8
1	6.3	7.1	1.8	5.0	1.0	2.1	20.8
2	10.0	9.5	2.9	5.0	1.9	0.7	20.8
3	7.9	8.0	2.3	5.0	1.2	2.1	20.8
4	6.3	6.9	3.1	5.0	1.9	2.8	20.8
5	4.0	11.0	1.4	12.5	2.2	4.3	20.8
6	10.0	10.9	2.8	5.0	2.0	0.7	20.8
7	5.0	7.3	1.3	5.0	1.2	2.1	20.8
8	12.6	11.3	3.2	9.0	4.6	0.7	20.8
9	10.0	8.2	1.0	5.0	1.0	4.3	20.8
10	5.0	9.3	1.4	5.0	1.1	4.3	20.8
11	7.9	10.4	1.2	5.0	1.0	4.3	20.8
12	12.6	16.0	1.3	5.0	1.0	7.8	20.8
13	7.9	9.3	0.8	5.0	1.0	0.7	20.8
14	12.6	14.5	2.1	5.0	1.5	3.6	20.8
15	10.0	16.0	1.5	6.5	1.8	1.4	20.8

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
52.0	-8.0	8.2	5.1	17.4	31.0	0.1	26.0	12.0
4.2	2.0	8.2	2.6	13.0	28.2	0.1	22.0	8.0
4.2	-2.0	8.2	2.6	17.4	31.0	0.1	22.0	8.0
6.2	2.0	8.2	2.6	17.4	31.0	0.1	14.0	6.0
4.2	2.0	8.2	4.4	13.0	25.4	0.1	12.0	6.0
6.2	11.9	13.2	2.6	34.8	53.6	0.1	20.0	10.0
4.2	-6.0	8.2	2.6	26.1	39.5	0.1	20.0	8.0
4.2	-2.0	8.2	2.6	8.7	28.2	0.1	28.0	14.0
4.2	-2.0	8.2	2.6	13.0	22.6	0.1	10.0	4.0
4.2	-9.9	8.2	2.6	13.0	25.4	0.1	34.0	18.0
4.2	-2.0	8.2	4.4	26.1	45.1	0.1	20.0	8.0
4.2	2.0	8.2	6.4	26.1	45.1	0.1	30.0	22.0
10.4	-13.9	14.0	2.6	56.6	76.1	0.1	26.0	12.0
6.2	-2.0	8.2	2.6	26.1	39.5	0.1	24.0	8.0
12.5	-11.9	10.7	2.6	43.5	59.2	0.1	20.0	8.0
12.5	-4.0	14.0	2.6	65.3	81.8	0.1	26.0	10.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON JAN. 10,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	5.0	27.0	0.3	8.0	1.0	1.4	20.8
1	10.0	79.0	0.4	22.0	1.0	5.0	62.4
2	7.9	53.0	0.4	15.0	1.0	4.3	45.8
3	6.3	20.0	0.3	5.0	1.0	2.1	20.8
4	6.3	19.0	0.4	5.0	1.0	2.1	20.8
5	7.9	51.0	0.5	14.5	1.0	2.8	41.6
6	6.3	41.0	0.3	11.5	1.0	2.8	31.2
7	7.9	44.0	0.4	11.5	1.0	2.8	35.4
8	7.9	47.0	0.4	13.0	1.0	3.6	35.4
9	10.0	46.0	0.3	12.5	1.0	3.6	35.4
10	6.3	46.0	0.7	14.5	1.0	2.8	35.4
11	6.3	57.0	0.4	16.0	1.0	3.6	45.8
12	6.3	75.0	0.9	25.0	1.1	3.6	62.4
13	7.9	43.0	0.3	11.5	1.0	3.6	33.3
14	7.9	37.0	0.4	10.0	1.0	2.8	31.2
15	7.9	31.0	0.3	8.0	1.0	2.8	31.2

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
18.7	-6.0	34.5	4.1	143.5	180.5	0.1	20.0	4.0
72.8	-9.9	98.6	10.2	435.0	564.0	0.1	33.0	8.0
47.8	-8.0	69.0	11.0	291.4	363.8	0.1	33.0	4.0
14.6	-8.0	25.5	2.6	100.1	121.3	0.1	24.0	4.0
14.6	-4.0	24.7	2.6	95.7	121.3	0.1	28.0	4.0
43.7	-8.0	66.6	7.4	282.8	349.7	0.1	18.0	3.0
60.3	-6.0	54.3	5.6	226.2	279.2	0.1	13.0	2.0
37.4	-8.0	58.4	5.6	243.6	304.6	0.1	33.0	6.0
41.6	-8.0	61.6	6.4	261.0	332.8	0.1	16.0	2.0
37.4	-9.9	60.8	5.6	247.9	318.7	0.1	32.0	6.0
37.4	-6.0	61.6	5.6	261.0	329.9	0.1	24.0	4.0
52.0	-6.0	75.6	7.7	317.6	406.1	0.1	22.0	3.0
74.9	-4.0	106.9	10.2	435.0	535.8	0.1	24.0	4.0
41.6	-8.0	57.5	5.6	234.9	296.1	0.1	30.0	6.0
31.2	-8.0	50.1	5.1	200.1	248.2	0.1	22.0	4.0
29.1	-8.0	41.1	3.8	169.7	205.9	0.1	26.0	6.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON JAN. 19,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	31.6	125.0	0.7	36.4	1.0	32.0	106.1
1	20.0	60.0	0.6	17.5	1.0	18.5	52.0
2	20.0	147.0	0.7	41.4	1.0	19.2	124.8
3	7.9	25.0	0.3	6.5	1.0	2.8	25.0
4	15.8	48.0	0.3	9.0	1.0	10.7	41.6
5	20.0	84.0	0.4	26.4	1.0	17.8	70.7
6	20.0	131.0	0.6	36.9	1.0	15.7	104.0
7	12.6	103.0	0.4	33.4	1.6	11.4	87.4
8	15.8	86.0	0.7	26.4	1.0	12.8	70.7
9	25.1	105.0	0.6	32.9	1.0	22.1	91.5
10	15.8	93.0	0.6	28.9	1.4	13.5	77.0
11	20.0	96.0	0.7	22.5	1.0	14.9	79.0
12	15.8	86.0	0.5	24.0	1.0	14.2	66.6
13	15.8	104.0	0.6	30.4	1.0	12.8	87.4
14	25.1	198.0	1.1	54.9	1.0	24.9	158.1
15	12.6	80.0	0.5	23.5	1.0	10.0	64.5

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
110.2	-33.8	164.4	16.6	704.7	846.0	0.5	60.0	16.0
56.2	-23.9	71.5	6.9	304.5	377.9	0.3	42.0	10.0
124.8	-23.9	205.5	20.5	870.0	1043.4	0.3	46.0	12.0
22.9	-8.0	31.2	3.8	130.5	157.9	0.1	26.0	6.0
43.7	-15.9	58.4	6.4	243.6	298.9	0.1	46.0	6.0
83.2	-19.9	106.9	16.6	456.7	564.0	0.4	30.0	6.0
83.2	-23.9	172.6	17.2	765.6	930.6	0.2	46.0	12.0
93.6	-9.9	139.7	19.2	595.9	705.0	0.2	24.0	4.0
83.2	-17.9	115.1	11.5	487.2	592.2	0.2	32.0	6.0
83.2	-25.9	131.5	14.1	587.2	705.0	0.3	22.0	4.0
72.8	-17.9	123.3	15.4	530.7	620.4	0.2	42.0	8.0
72.8	-17.9	123.3	12.8	552.5	705.0	0.2	24.0	2.0
62.4	-17.9	115.1	10.8	535.0	564.0	0.2	36.0	8.0
79.0	-17.9	131.5	14.1	609.0	733.2	0.2	32.0	6.0
153.9	-23.9	271.3	28.2	1261.5	1381.8	0.4	32.0	6.0
66.6	-13.9	106.9	13.3	452.4	564.0	0.2	32.0	8.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON JAN. 24,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	39.8	75.0	0.7	26.9	1.2	37.7	64.5
1	31.6	68.0	0.4	18.0	1.2	26.3	56.2
2	39.8	154.0	0.5	40.9	1.4	37.7	129.0
3	31.6	108.0	0.5	30.4	1.4	32.7	87.4
4	39.8	92.0	0.3	25.0	1.6	36.3	77.0
5	39.8	99.0	0.3	24.5	1.0	39.1	79.0
6	39.8	125.0	0.3	32.4		37.7	104.0
7	39.8	98.0	0.4	27.9		41.3	79.0
8	39.8	106.0	0.4	27.9	1.1	34.9	83.2
9	50.1	90.0	0.3	21.0	1.2	42.7	70.7
10	39.8	111.0	0.5	28.4	1.0	34.2	87.4
11	39.8	118.0	0.5	31.9	1.6	38.4	95.7
12	31.6	87.0	0.5	23.0	1.0	29.9	70.7
13	31.6	102.0	0.4	27.4	1.0	26.3	83.2
14	39.8	136.0	0.6	36.4	1.2	34.2	108.2
15	31.6	119.0	0.4	32.4	1.0	27.8	95.7

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
62.4	-39.8	82.2	8.2	343.6	564.0	0.6	34.0	8.0
54.1	-31.8	74.8	7.7	343.6	411.7	0.4	54.0	14.0
124.8	-37.8	197.3	22.8	848.2	1043.4	0.6	64.0	12.0
89.4	-35.8	131.5	16.6	565.5	705.0	0.6	52.0	12.0
81.1	-43.7	106.9	12.8	448.0	564.0	0.6	52.0	12.0
81.1	-45.7	123.3	14.6	487.2	592.2	0.6	44.0	10.0
99.8	-45.7	156.2	14.1	600.3	817.8	0.6	58.0	14.0
16.6	-47.7	98.6	14.1	478.5	592.2	0.6	36.0	6.0
12.5	-41.8	123.3	12.8	530.7	648.6	0.6	44.0	12.0
14.6	-49.7	98.6	9.0	413.2	507.6	0.6	40.0	8.0
10.4	-41.8	131.5	12.8	565.5	705.0	0.6	48.0	12.0
12.5	-45.7	148.0	14.1	617.7	733.2	0.6	42.0	12.0
8.3	-37.8	98.6	10.2	435.0	535.8	0.5	44.0	10.0
93.6	-33.8	123.3	11.5	535.0	676.8	0.4	44.0	10.0
104.0	-45.7	164.4	18.4	726.5	902.4	0.6	44.0	10.0
89.4	-37.8	148.0	15.4	748.2	789.6	0.5	34.0	8.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON JAN. 30,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	50.1	69.0	0.3	14.5	1.0	38.4	47.8
1	50.1	59.0	0.5	14.0	1.0	38.4	41.6
2	39.8	148.0	0.5	41.4	1.0	32.7	116.5
3	50.1	91.0	0.3	22.5		41.3	66.6
4	63.1	83.0	0.3	18.0	1.0	43.4	62.4
5	39.8	66.0	0.5	16.0		37.7	47.8
6	50.1	99.0	0.4	25.0	1.0	39.1	74.9
7	31.6	84.0	0.4	27.4	1.0	36.3	70.7
8	39.8	87.0	0.4	22.0	1.0	39.1	66.6
9	39.8	77.0	0.4	19.5	1.0	34.2	58.2
10	50.1	80.0	0.3	17.5	1.0	49.1	54.1
11	39.8	84.0	0.4	22.5	1.0	31.3	64.5
12	39.8	87.0	0.5	22.5	1.0	35.6	64.5
13	31.6	83.0	0.4	22.5	1.0	25.6	62.4
14	31.6	98.0	0.5	26.9	1.0	29.9	72.8
15	39.8	109.0	0.7	28.4	1.0	35.6	83.2

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
49.9	-47.7	67.4	6.4	269.7	372.2	0.6	34.0	8.0
41.6	-49.7	53.4	4.4	234.9	284.8	0.6	34.0	10.0
120.6	-41.8	189.1	21.8	835.2	987.0	0.5	52.0	14.0
72.8	-51.7	98.6	9.2	417.6	535.8	0.6	42.0	12.0
72.8	-55.7	82.2	8.2	369.8	451.2	0.7	32.0	8.0
52.0	-41.8	67.4	11.5	295.8	341.2	0.6	30.0	6.0
87.4	-49.7	115.1	12.8	491.6	592.2	0.6	48.0	12.0
74.9	-35.8	98.6	9.2	404.6	507.6	0.6	34.0	10.0
74.9	-49.7	90.4	8.2	356.7	507.6	0.6	46.0	12.0
66.6	-43.7	79.7	7.7	365.4	451.2	0.5	34.0	6.0
64.5	-57.7	75.6	7.7	321.9	392.0	0.7	50.0	12.0
74.9	-39.8	90.4	9.2	421.9	507.6	0.5	38.0	10.0
83.2	-43.7	98.6	9.2	421.9	507.6	0.5	46.0	12.0
70.7	-33.8	98.6	9.2	426.3	507.6	0.4	36.0	12.0
97.8	-35.8	115.1	12.8	508.9	620.4	0.4	42.0	12.0
91.5	-45.7	131.5	11.5	565.5	676.8	0.5	44.0	12.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON FEB. 7,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	39.8	47.0	0.2	10.5		30.6	35.4
1	39.8	62.0	0.2	15.0		30.6	43.7
2	20.0	104.0	0.7	54.9		27.8	83.2
3	39.8	106.0	0.6	30.9		32.7	81.1
4	31.6	56.0	0.2	17.0	1.0	27.8	41.6
5	39.8	110.0	0.4	32.4	1.0	34.2	83.2
6	39.8	63.0	0.3	17.0	1.0	34.2	45.8
7	39.8	86.0	0.5	24.0	1.0	39.9	72.8
8	25.1	58.0	0.4	19.5	1.6	22.8	47.8
9	39.8	70.0	0.4	19.0		32.7	54.1
10	39.8	80.0	0.3	23.5	1.0	32.7	60.3
11	39.8	75.0	0.6	19.5		32.7	60.3
12	50.1	86.0	0.4	23.5		44.1	68.6
13	39.8	79.0	0.3	19.5		35.6	60.3
14	39.8	78.0	0.4	20.0		32.7	62.4
15	39.8	64.0	0.4	16.5	1.0	35.6	54.1

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
35.4	-39.8	41.1	4.4	174.0	208.7	0.5	20.0	8.0
47.8	-39.8	63.3	5.6	265.4	329.9	0.5	18.0	10.0
81.1	-15.9	123.3	14.1	561.1	705.0	0.4	20.0	10.0
83.2	-39.8	123.3	12.8	522.0	676.8	0.5	20.0	10.0
41.6	-33.8	60.0	5.1	230.5	293.3	0.4	20.0	8.0
83.2	-39.8	131.5	12.8	552.5	705.0	0.6	24.0	10.0
47.8	-39.8	63.3	5.6	265.4	335.6	0.5	26.0	10.0
70.7	-43.7	90.4	11.5	395.9	479.4	0.6	18.0	8.0
47.8	-27.8	64.9	5.6	269.7	332.8	0.4	22.0	8.0
54.1	-37.8	74.8	6.9	308.9	377.9	0.5	20.0	8.0
62.4	-39.8	90.4	7.9	361.1	451.2	0.5	20.0	8.0
54.1	-39.8	79.7	7.9	339.3	414.5	0.5	34.0	12.0
60.3	-51.7	90.4	9.2	365.4	479.4	0.7	22.0	8.0
58.2	-45.7	82.2	7.9	348.0	451.2	0.6	24.0	10.0
58.2	-39.8	82.2	7.9	361.1	451.2	0.5	28.0	12.0
49.9	-45.7	62.5	5.6	265.4	327.1	0.7	18.0	6.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON FEB. 14,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	31.6	39.0	0.2	10.5	1.0	27.8	35.4
1	31.6	32.0	0.3	8.5		22.1	29.1
2	25.1	58.0	0.3	15.0		21.4	45.8
3	39.8	64.0	0.2	16.5	1.0	30.6	52.0
4	25.1	40.0	0.3	11.5	1.0	21.4	31.2
5	25.1	44.0	0.4	12.0	1.0	20.6	35.4
6	31.6	66.0	0.7	20.5	1.0	24.2	56.2
7	25.1	60.0	0.6	18.5	1.0	21.4	52.0
8	25.1	67.0	0.6	22.5	1.0	25.6	56.2
9	25.1	56.0	0.5	20.5	1.0	25.6	52.0
10	25.1	50.0	0.5	15.0	1.0	22.1	41.6
11	31.6	65.0	0.5	17.0	1.0	26.3	56.2
12	25.1	57.0	0.3	15.0	1.0	22.1	45.8
13	31.6	77.0	0.3	20.0	1.0	29.9	62.4
14	39.8	88.0	0.5	24.0	1.0	30.6	72.8
15	39.8	73.0	0.3	18.0	1.0	34.2	60.3

SO4 IC	ALK	MG	K	NA	CL	NTOTAL	DEPTH CM	WATER CM
31.2	-37.8	32.9	2.6	130.5	163.6	0.4	28.0	10.0
25.0	-29.8	25.5	2.6	104.4	126.9	0.4	28.0	12.0
41.6	-29.8	63.3	5.1	265.4	332.8	0.4	36.0	18.0
45.8	-35.8	66.6	5.1	265.4	329.9	0.5	40.0	14.0
29.1	-29.8	40.3	2.6	160.9	208.7	0.4	28.0	10.0
45.8	-25.9	44.4	2.6	195.7	225.6	0.4	36.0	14.0
45.8	-31.8	73.2	6.4	304.5	386.3	0.4	32.0	12.0
47.8	-27.8	68.2	9.0	287.1	352.5	0.4	26.0	10.0
58.2	-25.9	77.3	9.0	321.9	397.6	0.4	32.0	12.0
37.4	-29.8	60.0	5.1	252.3	315.8	0.5	28.0	10.0
41.6	-31.8	50.1	3.8	213.2	262.3	0.4	28.0	14.0
52.0	-31.8	72.3	6.4	304.5	383.5	0.4	30.0	12.0
41.6	-31.8	62.5	5.1	265.4	332.8	0.4	34.0	16.0
58.2	-35.8	90.4	6.9	369.8	451.2	0.5	34.0	14.0
70.7	-35.8	106.9	9.2	435.0	535.8	0.5	40.0	16.0
58.2	-41.8	76.4	6.4	321.9	414.5	0.5	32.0	10.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON FEB. 18,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY JTU	CA	DOC MG/L	NO3	SO4 MTB
OPEN	39.8	49.0	0.3	11.0	1.0	32.0	41.6
1	25.1	36.0	0.2	8.5	1.0	23.5	31.2
2	20.0	56.0	0.5	15.0	1.0	19.9	45.8
3	31.6	88.0	0.5	27.9		28.5	72.8
4	79.4	56.0	0.3	9.5	1.0	89.0	31.2
5	31.6	63.0	0.3	18.0		30.6	54.1
6	39.8	63.0	0.3	15.5	1.0	34.2	52.0
7	25.1	66.0	0.9	20.0	1.0	27.0	62.4
8	20.0	62.0	0.7	31.4	1.0	27.0	60.3
9	31.6	53.0	0.3	14.5	1.0	27.0	45.8
10	31.6	41.0	0.4	15.5	1.0	28.5	37.4
11	25.1	70.0	1.0	26.9	1.0	26.3	60.3
12	31.6	58.0	0.7	15.5	1.0	24.9	52.0
13	25.1	63.0	0.6	19.0	1.0	21.4	52.0
14	25.1	71.0	1.2	24.0	1.0	24.9	60.3
15	31.6	69.0	0.7	21.5	1.0	26.3	62.4

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
33.3	-41.8	46.9	2.6	191.4	242.5	0.5	30.0	10.0
27.0	-27.8	31.2	2.6	130.5	160.7	0.4	44.0	18.0
41.6	-21.9	60.0	6.4	265.4	335.6	0.4	22.0	10.0
70.7	-35.8	98.6	10.2	421.9	507.6	0.5	50.0	16.0
29.1	-85.5	23.8	2.6	95.7	121.3	1.2	24.0	8.0
52.0	-33.8	64.9	6.4	274.1	344.0	0.5	30.0	14.0
47.8	-43.7	61.6	5.1	261.0	327.1	0.5	40.0	14.0
60.3	-25.9	74.0	9.0	317.6	400.4	0.5	32.0	12.0
60.3	-19.9	74.0	6.4	308.9	386.3	0.4	32.0	12.0
43.7	-33.8	53.4	5.1	221.8	270.7	0.4	32.0	14.0
31.2	-31.8	35.3	2.6	143.5	180.5	0.5	42.0	16.0
60.3	-29.8	77.3	7.7	334.9	423.0	0.4	34.0	12.0
47.8	-37.8	56.7	5.4	247.9	310.2	0.4	28.0	12.0
47.8	-21.9	73.2	6.9	304.5	386.3	0.4	32.0	12.0
58.2	-23.9	82.2	7.7	348.0	423.0	0.4	24.0	10.0
58.2	-31.8	79.7	9.0	321.9	411.7	0.4	40.0	14.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON FEB. 25,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY	CA	DOC MG/L	NO3	SO4 MTB
OPEN	25.1	27.0	0.8	7.5	1.0	15.7	25.0
1	15.8	24.0	0.5	6.5	1.0	14.2	20.8
2	15.8	38.0	0.4	10.0	1.0	12.8	27.0
3	12.6	34.0	0.6	10.0	1.0	12.8	27.0
4	20.0	38.0	0.5	10.0		20.6	33.3
5	15.8	21.0	0.4	5.0		10.7	20.8
6	39.8	69.0	0.5	10.5	1.0	25.6	52.0
7	20.0	37.0	0.6	11.0	1.0	18.5	31.2
8	15.8	29.0	0.7	10.5	1.0	20.6	27.0
9	25.1	48.0	0.6	14.5		24.9	41.6
10	25.1	38.0	0.5	15.0	1.0	19.9	31.2
11	12.6	45.0	0.6	15.0	1.0	14.2	41.6
12	20.0	59.0	0.6	18.5	1.0	19.9	45.8
13	15.8	43.0	1.1	14.5	1.0	14.2	33.3
14	20.0	44.0	1.1	14.5	1.0	19.9	35.4
15	10.0	29.0	1.8	10.5	1.0	7.1	31.2

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
35.4	-31.8	17.3	2.6	69.6	95.9	0.2	8.0	4.0
20.8	-15.9	20.5	2.6	91.3	110.0	0.2	16.0	10.0
25.0	-13.9	41.1	3.8	178.3	217.1	0.2	20.0	16.0
25.0	-15.9	37.8	3.8	160.9	197.4	0.2	38.0	18.0
29.1	-23.9	39.5	3.8	160.9	194.6	0.3	16.0	8.0
16.6	-13.9	17.3	2.6	69.6	93.1	0.1	10.0	6.0
52.0	-49.7	63.3	5.9	269.7	338.4	0.4	10.0	6.0
29.1	-23.9	37.8	3.8	156.6	186.1	0.3	8.0	4.0
27.0	-17.9	27.1	2.6	108.7	135.4	0.3	6.0	4.0
41.6	-29.8	49.3	2.6	108.7	245.3	0.4	12.0	6.0
31.2	-29.8	37.0	3.8	143.5	183.3	0.3	12.0	6.0
37.4	-15.9	53.4	6.4	221.8	270.7	0.2	8.0	6.0
54.1	-27.8	69.0	5.9	291.4	361.0	0.3	8.0	4.0
33.3	-17.9	50.1	4.4	204.4	256.6	0.2	12.0	12.0
33.3	-21.9	49.3	4.4	195.7	242.5	0.3	4.0	4.0
31.2	-6.0	33.7	4.4	139.2	169.2	0.1	16.0	8.0

SITE B SNOW CHEMISTRY AND WATER CONTENT ON MAR. 9,1985
(VALUES IN UEQ/L)

STN	HYDROGEN	COND USIE/CM	TURBIDITY USIE/CM	CA	DOC MG/L	NO3	SO4 MTB
OPEN	31.6	20.0	1.1	5.0	1.0	11.4	25.0
1	7.9	17.0	0.5	5.0		5.7	20.8
2	10.0	13.9	0.5	5.0	1.0	3.6	20.8
3	15.8	16.0	0.5	5.0	1.0	10.0	20.8
4	15.8	17.0	0.5	5.0	1.0	9.3	20.8
5	7.9	14.8	2.1	10.0	1.0	3.6	20.8
6	20.0	48.0	0.4	12.0	1.0	15.7	41.6
7	20.0	32.0	0.7	8.5	1.0	14.9	27.0
8	10.0	11.2	0.3	5.0		7.8	20.8
9	12.6	18.0	0.4	5.0		9.3	20.8
10	10.0	10.0	0.4	5.0		6.4	20.8
11	15.8	15.0	0.4	5.0	1.0	9.3	20.8
12	12.6	15.0	0.6	5.0	1.0	7.1	20.8
13	12.6	27.0	0.5	9.0		10.7	25.0
14	10.0	12.3	1.3	5.0	1.0	6.4	20.8
15	12.6	27.0	1.4	7.0		7.8	25.0

SO4 IC	ALK	MG	K	NA	CL	NTOTAL MG/L	DEPTH CM	WATER CM
25.0	-33.8	8.2	2.6	21.7	36.7	0.2	12.0	4.0
16.6	-6.0	17.3	2.6	69.6	95.9	0.1	32.0	14.0
12.5	-9.9	10.7	2.6	47.9	70.5	0.1	32.0	18.0
12.5	-11.9	11.5	2.6	43.5	64.9	0.3	40.0	20.0
12.5	-15.9	14.8	2.6	56.6	79.0	0.2	38.0	18.0
10.4	-2.0	14.0	7.7	78.3	79.0	0.1	36.0	14.0
37.4	-19.9	55.9	5.1	230.5	293.3	0.3	24.0	12.0
25.0	-19.9	32.1	3.8	130.5	163.6	0.3	12.0	4.0
4.2	-8.0	8.2	6.4	47.9	47.9	0.2	32.0	14.0
10.4	-9.9	16.4	2.6	69.6	95.9	0.2	28.0	12.0
4.2	-9.9	8.2	2.6	34.8	45.1	0.1	38.0	16.0
10.4	-11.9	12.3	3.8	47.9	64.9	0.2	28.0	12.0
10.4	-11.9	12.3	2.6	47.9	67.7	0.2	32.0	14.0
20.8	-11.9	28.8	2.6	121.8	155.1	0.2	30.0	14.0
6.2	-8.0	11.5	2.6	43.5	59.2	0.1	28.0	12.0
22.9	-13.9	29.6	2.6	121.8	152.3	0.2	20.0	8.0